Supreme Court, U.S.
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No. OFFICE OF THE CLERK

In The
Supreme Court of The United States
October Term 1996

CLAUDE I. SMELSER,
Petitioner,

v.

NORFOLK AND WESTERN RAILWAY COMPANY,
Respondent.

Petition For A Writ Of Certiorari To The United States Court of Appeals For The Sixth Circuit

PETITION FOR WRIT OF CERTIORARI WITH APPENDIX

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149 pp

QUESTION PRESENTED

Whether the United States Court of Appeals for the Sixth Circuit improperly reversed the United States District Court's remitted judgment of $1,668,000 in favor of the Petitioner on his F.E.L.A. claim where:

(1) the United States Court of Appeals for the Sixth Circuit employed a de novo standard of review in regard to the admission of expert testimony under Daubert v. Merrell Dow Pharmaceuticals, Inc. (1993), 113 S. Ct. 2786, 125 L.Ed. 2d 469, contrary to its own prior decision and inconsistent with decisions of the Second, Third, and Fifth Circuit Courts of Appeals;

(2) the United States Court of Appeals For The Sixth Circuit applied Daubert standards to exclude the testimony of a mechanical engineer which did not involve novel scientific theories or techniques, contrary to Daubert, supra, and inconsistent with the decision of the Tenth Circuit Court Of Appeals;

(3) the United States Court of Appeals for the Sixth Circuit reversed the United States District Court because of that court's failure to properly apply the standards set out in Daubert, supra, when, in fact, the district court had made an appropriate Daubert inquiry;

(4) the United States Court of Appeals for the Sixth Circuit, after excluding evidence admitted by the trial court, reversed, without remand, a remitted judgment of $1,668,000 in favor an injured railroad worker under the Federal Employees Liability Act, 45 Section 51, et seq., a remedial statute designed to compensate injured workers.

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In The

SUPREME COURT

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CLAUDE I. SMELSER,
Petitioner,

v.

NORFOLK SOUTHERN RAILWAY COMPANY,
Respondent,

On Petition for a Writ Certiorari
to the United States Court of Appeals
for the Sixth Circuit

PETITION FOR WRIT OF CERTIORARI

The Petitioner, Claude I. Smelser, respectfully prays that a writ of certiorari issue to review the judgment of the United States Court of Appeals for the Sixth Circuit, entered in the above-entitled proceeding on January 27, 1997.

OPINIONS BELOW

The opinion and judgment of the Sixth Circuit Court of Appeals, dated January 27, 1997, was reported. A copy of the opinion is reproduced in the Appendix at p. A-1. The Order on the Petition For Rehearing en banc before the Sixth Circuit Court of Appeals was dated March 7, 1997. A copy of that Order is reproduced in the Appendix at p. D-26. The District Court's Order Denying Defendant's Motion For Judgment As A Matter Of Law And Motion For New Trial was dated July 26, 1994. A copy of that Order is reproduced in the Appendix at p. C-23. The District Court's Judgment In Civil Case was dated May 3, 1994. A copy of that Judgment is reproduced in the Appendix at p. B-21.

On March 7, 1997, the Sixth Circuit Court Of Appeals denied rehearing en banc of the Sixth Circuit Court of Appeals' opinion, dated January 27, 1997, overturning the decision of the United States District Court for the Southern District of Ohio granting judgment in favor of the Plaintiff for $1,668,000.

JURISDICTIONAL STATEMENT

The United States District Court for the Southern District of Ohio had jurisdiction over this action pursuant to 28 U.S.C. Section 1331 and 1338, in that this action arose under Section 56 of the Federal Employer's Liability Act (F.E.L.A.), 45 U.S.C. Section 51 et seq. The Sixth Circuit Court of Appeals had jurisdiction pursuant to 28 U.S.C. Sections 1291 and 1294.

The jurisdiction of the Supreme Court to review the Judgment of the Sixth Circuit Court of Appeals is invoked pursuant to 28 U.S.C. Section 1254(1).

CONSTITUTIONAL PROVISIONS AND STATUTES AND RULES INVOLVED

45 U.S.C. Section 51

> Every common carrier by Railroad... shall be liable in damages to any person suffering injury while he is employed... for... injury or death resulting in whole or in part from the negligence of any of the officers, agents, or employees of such carrier.

Fed. R. Evid. 702

> If scientific, technical, or other specialized knowledge will assist the trier of fact to understand the evidence or to determine a fact in issue, a witness who qualified as an expert by knowledge, skill, experience, training, or education, may testify thereto in the form of an opinion or otherwise.

STATEMENT OF THE CASE

The Petitioner, a thirty-three year employee of the Norfolk & Western Railway Company, brought this F.E.L.A. action against his employer, claiming that he was injured and permanently disabled in a rear-end motor vehicle collision, when the shoulder harness of the seatbelt in the railroad vehicle which he was driving failed to restrain him. The Petitioner maintained that the railroad had neglected to repair or replace the seatbelt after a previous collision, as required by the owner's manual. After a five-day trial, the jury returned a verdict for the Petitioner for $3,500,000. The trial court remitted the verdict to $1,668,000 on a post-trial motion by the Respondent. The decision of the United States Court of Appeals for the Sixth Circuit reversed the trial court and remanded the case for entry of judgment in favor of the Respondent. That decision is based upon a conclusion that one of the Petitioner's expert witnesses, a Ph.D. mechanical engineer, trained in biomechanics, should not have been permitted by the trial court to testify as an expert, because his methodology was purportedly inadequate under Daubert v. Merrell Dow Pharmaceuticals, Inc. (1993), 113 S.Ct. 2786, 125 L.2d 469. The opinion of the Court stated that, because there was not otherwise a scintilla of evidence to

connect the Petitioner's injuries to the failure of the seatbelt, judgment should have been entered for the Respondent.

In presenting the injury portion of his case to the jury, the Petitioner himself testified concerning the failure of the seatbelt and the injuries he sustained. Next, the Petitioner called his treating physician, an orthopaedic surgeon, who testified that the Petitioner's injuries were caused by the rear-end collision. Finally, the Petitioner called Dr. Ronald Huston, a Ph.D. in mechanical engineering, with training in biomechanics, who testified that in his opinion, based upon his testing of the seatbelt, the shoulder portion of the seatbelt had failed to restrain the Petitioner in the collision. Dr. Huston further testified, as an expert in biomechanics, that the failure of the seatbelt caused certain injuries and aggravated others.

Before Dr. Huston testified on the ultimate issues, he was questioned concerning his credentials. It was established that he was a Ph.D. in mechanical engineering and a full-time professor in the Department of Mechanical Industrial and Nuclear Engineering at the University of Cincinnati, who had taught for thirty-two years. He had held many positions in the engineering field. He had taught a graduate level course in biomechanics for over twenty years. He had conducted research for the United States

Navy and for NASA. He had written extensively on restraint systems and in the field of biomechanics, having published over one hundred articles, one hundred twenty-five papers, seven books, and various reports in both fields of endeavor. (Apdx. E-28 to E-33).

After Dr. Huston testified concerning his credentials, he was subjected to a wide-ranging voir dire examination, outside the presence of the jury, which included questions from both the trial court and counsel for the Respondent. (Apdx. E-43 to E-73). These questions concerned the nature of the science of biomechanics as well as all aspects of his testing for the particular seatbelt defect and his opinion as to the causation of the Petitioner's injury. The trial court based its questions, specifically, on the requirements of Daubert, supra. (Apdx. E-61). After this questioning, the trial court permitted Dr. Huston to testify concerning the failure of the seatbelt and the specific cause of injury to the Petitioner.

REASONS FOR GRANTING WRIT

1. THIS COURT HAS RECENTLY ACCEPTED FOR REVIEW A CASE (JOINER V. GENERAL ELECTRIC COMPANY (1996), 78 F.3D 524 (11th Cir.), CERT. GRANTED, 65 L.W. 3629, 117 S.CT. 1243, 137 L.ED. 2d 325) WHICH RAISES ISSUES IDENTICAL TO THE ISSUES RAISED IN THIS CASE; GRANTING CERTIORARI IN THIS CASE WOULD ALLOW THIS COURT TO ESTABLISH DEFINITIVELY THE STANDARD OF REVIEW TO BE APPLIED BY AN APPELLATE COURT UNDER DAUBERT V. MERRELL DOW PHARMACEUTICALS, INC. GRANTING CERTIORARI IN THIS CASE WOULD ALSO PREVENT UNFAIRNESS TO THE PETITIONER IN THE EVENT THIS COURT DECIDES JOINER, SUPRA, IN A MANNER FAVORABLE TO HIM.

In Joiner v. General Electric Company (1996), 78 F.3d 524 (11th Cir.), the case currently under review by this Court, the Court of Appeals for the Eleventh Circuit stated that "[a] district court's ruling on the admissibility of evidence is reviewed for abuse of discretion." Joiner v. General Electric, supra 529. That court then went on to consider, at some length, the standards for admissibility of

certain expert testimony set out in this Court's decision in Daubert v. Merrell Dow Pharmaceuticals, Inc. (1993), 113 S. Ct. 2786, 125 L.2d 469. The Sixth Circuit Court of Appeals stated in its opinion in this case, under the heading, "Standard of Review" at page 5:

> we review de novo the trial court's determination "whether the opinion the expert wishes to offer is properly the subject of 'scientific, technical, or other specialized knowledge'" and this includes its "determination whether 'the reasoning or methodology underlying the testimony was scientifically valid.'"

It is apparent that Joiner v. General Electric, supra, and this case raise the identical issue of the proper standard of review to be applied by an appellate court in regard to expert testimony under Daubert v. Merrell Dow Pharmaceuticals, Inc., supra. Moreover, the two circuit courts are in conflict on the resolution of that issue, because the Sixth Circuit Court employs a de novo standard, while the Eleventh Circuit employs an abuse-of-discretion standard. Acceptance of the case here would allow this Court to establish definitively the proper standard of review to be applied by an appellate court in regard to expert

testimony under Daubert, supra. This case naturally compliments Joiner, supra, because the Sixth Circuit Court of Appeals used a de novo standard to reverse on the admission of Daubert testimony, while the Eleventh Circuit used an abuse-of-discretion standard to reverse on the exclusion of Daubert testimony.

This Court should accept this case, if only to hold the case for remand in anticipation of this Court's decision in Joiner, supra. This would prevent the obvious unfairness to the Petitioner in the event that this Court decides Joiner, supra, in a manner favorable to the Petitioner.

2. THE DECISIONS OF THE UNITED STATES CIRCUIT COURTS OF APPEALS ARE IN CONFLICT ON THE PROPER STANDARD OF APPELLATE REVIEW OF A LOWER COURT'S APPLICATION OF THE STANDARDS UNDER DAUBERT.

Not only is the decision of the Sixth Circuit Court of Appeals in this case in conflict with the decision of the Eleventh Circuit Court of Appeals on the level of review, as set out above, but it is also in conflict with its own prior

decision and decisions from Second, Third, and Fifth Circuit Courts of Appeals.

In United States v. Bonds (1993), 12 F.3d 540, 554 (6th Cir.), a post-Daubert case involving the review of admissibility of DNA evidence admitted at trial, the Sixth Circuit Court of Appeals stated:

> We review the trial court's admission of testimony and other evidence under the abuse of discretion standard.

There is no logical distinction, as far as the level of review is concerned, between the admission of expert testimony concerning DNA and expert testimony concerning issues of mechanical and biomechanical engineering. Yet, the same court of appeals has employed a de novo standard in one case and an abuse-of-discretion in another.

In Christophersen v. Allied Signal Corp. (1991), 939 F.2d 1106, 1109 (5th Cir.), the Fifth Circuit Court of Appeals stated the following:

> A trial court's ruling regarding admissibility of expert testimony is protected by an ambit of discretion and must be sustained unless manifestly

erroneous.

It is obvious that the "manifestly erroneous" standard is markedly different from the "de novo" standard used by the Sixth Circuit Court of Appeals in this case.

In DeLuca v. Merrell Dow Pharmaceuticals, Inc. (1990), 911 F.2d. 941, 944 (3rd Cir.), the Third Circuit Court of Appeals stated:

> Our review of a court's decision to exclude the testimony of an expert is ordinarily limited to ensuring there has been no abuse of discretion, but to the extent the district court's ruling turns on an interpretation of a Federal Rule of Evidence our review is plenary.

Again, the federal appellate court clearly enunciates an abuse-of-discretion standard for review of expert testimony.

In Compton v. Subaru of America, Inc. (1996), 82 F.3d 1513, 1518 (10th Cir.), the Tenth Circuit Court of Appeals discussed explicitly the standard of review to be applied in a Daubert case:

> [T]he applicability of Daubert is a question of law which this Court views "de novo". ...However, once we determine Daubert's relevance and application, our review of the district's decision to admit expert testimony is limited. We may reverse the district court only for an abuse of discretion.

It is clear from the above language that the decision of the Tenth Circuit Court of Appeals is in direct contradiction to the decision of the Sixth Circuit Court of Appeals in this case which reviewed the "decision to admit expert testimony" de novo.

In McCullock v. H.B. Fuller Co. (1985), 61 F.3d 1038 (2nd Cir.), a post-Daubert case, the Court of Appeals for the Second Circuit considered the admission by the trial court of expert testimony concerning exposure to glue fumes in the workplace. In line with the Tenth Circuit Court of Appeals in Compton, supra, the court stated:

> The decision to admit expert testimony is left to the broad discretion of the trial judge and will be overturned only when manifestly erroneous.

McCullock, supra 1042.

It is apparent that the decision of the Sixth Circuit Court of Appeals in this case is in conflict with the decisions of other circuit courts of appeals on the level of review to be employed by an appellate court in regard to expert testimony under Daubert, supra. More precisely, the Sixth Circuit Court of Appeals has, in this case, used the most stringent level of review in regard to the trial court's admission of expert testimony, which has not been used by any other court. Moreover, the use of a de novo standard of review is contrary to the "liberal thrust" of the federal rules of evidence as indicated in this Court's decision in Daubert v. Merrell Dow Pharmaceuticals, Inc., supra.

3. THE DECISIONS OF THE UNITED STATES CIRCUIT COURTS OF APPEALS ARE IN CONFLICT ON THE APPLICABILITY OF DAUBERT TO CERTAIN KINDS OF EXPERT TESTIMONY.

The Sixth Circuit Court of Appeals in this case assumed, without significant discussion, that the standards set forth in Daubert, supra, are applicable to the testimony of a mechanical engineer, with training in biomechanics, on the issue of the failure of a seatbelt and on the issue of causation of injury. The Petitioner's expert in this case

testified based primarily upon his education and experience and upon certain tests he performed upon the seatbelt in question, none of which were novel in nature.

In Compton v. Subaru of America, Inc. supra, the Tenth Circuit Court of Appeals found Daubert, supra, to be inapplicable to such testimony. Pointing out that "[i]n Daubert the Court considered the admissibility of novel scientific evidence" (Compton, supra 1518), the appellate court found that Daubert did not apply to the testimony of an engineer who gave his opinion on the cause of an automobile rollover. The court stated that:

> [t]he language in Daubert makes clear the factors outlined by the Court are applicable only when a proffered expert relies on some principle or methodology. In other words, application of the Daubert factors is unwarranted in cases where expert testimony is based solely upon experience or training.

Compton, supra 1518.

Just as the expert in this case drew conclusions concerning the seatbelt and the causation of injury based

upon his experience and education as an engineer, with training in biomechanics, the expert in Compton, supra,

> reached his expert conclusions by drawing upon general engineering principles and his twenty-two years of experience as an automotive engineer.

Compton, supra 1519. The inapplicability of the Daubert factors is apparent upon close examination of the decision of the Sixth Circuit Court of Appeals in this case. The court, at page 10, suggests that under Daubert, the simple tests performed by the engineer for the purpose of litigation must result in publication in order to be admissible:

> Smelser failed to establish that any of Huston's seatbelt tests... had been the subject of peer review or publication.

The decision in Daubert simply cannot be read as intending to place such barriers to the admission of expert testimony.

In another case of engineering testimony, a federal district court also found the Daubert factors to be inapplicable. In Lappe v. American Honda Motor Co. (1994), 857 F. Supp. 222 (N.D.N.Y.), the court dealt with

the testimony of an engineer concerning the design of an auto roof. In ruling on the defendant's motion to exclude the testimony under Daubert, supra, the court stated that the

> application of Daubert to the testimony in the present action, however, would require an expansion of the Supreme Court's language beyond its obvious scope and meaning. Daubert's narrow focus is on the admissibility of "novel scientific evidence" under Fed. R. Evid. 702. [citation omitted] Daubert only prescribes judicial intervention for expert testimony approaching the outer boundaries of traditional scientific and technological knowledge.

Lappe, supra 228. The testimony of the Petitioner's expert in this case did not in any manner constitute "novel scientific evidence." The testimony was based upon the fields of mechanical engineering and biomechanics. Although the field of biomechanics is more recent than mechanical engineering, it is not novel. The Petitioner's expert had taught courses in biomechanics for over twenty years. The Sixth Circuit Court of Appeals itself had previously approved the testimony of a biomechanical expert. See Mannino v. International Mfg. Co. (1981), 650 F.2d 846 (6th Cir.) Even if the field of biomechanics were considered "novel", the trial court did not err because it

made an appropriate Daubert inquiry, questioning the expert, outside the presence of the jury, on the basic principles of the science and their application. (Apdx. E-66 to E-72).

Although the Sixth Circuit Court of Appeals applied the Daubert factors to the engineering testimony in this case, other courts, including the Tenth Circuit Court of Appeals, have found the Daubert factors inapplicable to testimony by an engineer, such as that offered in this case.

4. THE DECISION OF THE UNITED STATES COURT OF APPEALS FOR THE SIXTH CIRCUIT IMPROPERLY REVERSED, WITHOUT REMAND, A JURY VERDICT OF $3,500,000 IN FAVOR OF THE PETITIONER, AN INJURED RAILROAD WORKER, ON HIS CLAIM UNDER F.E.L.A., 45 U.S.C. 51, ET SEQ., A REMEDIAL STATUTE DESIGNED TO COMPENSATE INJURED WORKERS.

The effect of the decision of the Sixth Circuit Court of Appeals in this case is to eliminate a jury verdict delivered after five days of trial in favor of a railroad worker who had not been able to work since the automobile

collision in August of 1989. The Sixth Circuit Court of Appeals itself stated, in Green v. River Terminal Railroad Co. (1985), 763 F.2d 805, 806 (6th Cir.) the following:

> [I]n light of the remedial purposes underlying the F.E.L.A., that Act is to be liberally construed in favor of the injured Plaintiff.

The court went on to emphasize the "legislative desire to preserve the Plaintiff's right to a jury trial". Green, supra.

The decision of the Sixth Circuit Court of Appeals in this case is contrary to the intent of the F.E.L.A.

CONCLUSION

The Petitioner requests review by the Supreme Court in order to resolve the conflict among the circuit courts of appeals with respect to the standard of review to be applied by trial courts in considering the admission of expert testimony under Daubert v. Merrell Dow Pharmaceuticals, Inc. Supreme Court review is also requested to resolve the conflict between the Sixth Circuit Court of Appeals and the Tenth Circuit Court of Appeals with respect to the applicability of the Daubert, factors to certain kinds of expert testimony.

The resolution of these conflicts is very important for the federal appellate courts and trial courts which have wrestled, since Daubert, supra, with ever more complicated issues concerning expert testimony.

The Petition For Certiorari should therefore be granted.

Respectfully Submitted,

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APPENDIX A

UNITED STATES COURT OF APPEALS
FOR THE SIXTH CIRCUIT

OPINION

Sixth Circuit Case No. 95-3489/3529
Filed January 27, 1997

Nos. 95-3489/3529

UNITED STATES COURT OF APPEALS
FOR THE SIXTH CIRCUIT

CLAUDE I. SMELSER,
Plaintiff-Appellee,
Cross-Appellant,

v.

NORFOLK SOUTHERN RAILWAY COMPANY,
Defendant,

NORFOLK AND WESTERN RAILWAY COMPANY,
Defendant-Appellant,
Cross-Appellee.

On Appeal from the United States District Court
for the Southern District of Ohio

Decided and Filed January 27, 1997

Before: NORRIS and COLE, Circuit Judges; EDMUNDS, District Judge.*

NANCY G. EDMUNDS, District Judge. Defendant, Norfolk & Western Railway Co. ("Norfolk"), appeals from the judgment entered against it after a jury verdict in an action for negligence brought pursuant to the Federal Employers' Liability Act ("FELA"), 45 U.S.C. § 51, *et seq*. Plaintiff, Claude Smelser, brought suit against his employer, Norfolk, for injuries sustained when the company pick-up truck he was driving to a job site was hit in the rear by another motorist. Smelser alleged that the company truck had a defective safety belt which caused the injuries to his back and aggravated his neck injuries. The jury awarded Smelser $3.5 million compensatory damages, but the trial court remitted the judgment to $1,668,000. Norfolk appeals, arguing it is entitled to judgment as a matter of law in its favor, or in the alternative, a new trial. Smelser cross-appeals asserting that the trial court's remittitur decision was in error and should be reversed.

We conclude that the trial court erred when it allowed Smelser's expert, Ronald Huston, to offer his

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*The Honorable Nancy G. Edmunds, United States District Judge for the Eastern District of Michigan, sitting by designation.

opinion that a defective shoulder belt in the company pick-up truck, and not the rear-end collision, caused Smelser's back injuries and aggravated his neck injuries. The court did not adequately assess the reliability of the methodology underlying Dr. Huston's opinions both as to defect and causation and also failed to recognize that Dr. Huston's opinion as to the cause of Smelser's specific injuries went beyond his expertise in biomechanics. Accordingly, it failed to adequately perform its gatekeeping functions as recently defined by the Supreme Court in *Daubert v. Merrell Dow Pharmaceuticals, Inc.*, 509 U.S. 579, 113 S. Ct. 2786 (1993). The court further erred when it denied Norfolk's motion for a directed verdict because, without Dr. Huston's improper testimony, there is not a scintilla of evidence that a defective shoulder belt, and not the rear-end collision, caused or aggravated Smelser's injuries. Therefore, we REVERSE the judgment against Norfolk. The case is REMANDED for an entry of judgment as a matter of law in favor of Norfolk. Fed. R. Civ. P. 50(a).

I.

Smelser, a 53-year old Norfolk employee, was injured on August 29, 1989 when the company pick-up

truck he was driving to a job site was rear-ended by another motorist traveling at approximately 45 m.p.h. Smelser testified that on impact, his head snapped back and hit the rear window of the truck cab, then his upper body moved forward and to the left; he ended up down in between the steering wheel and the door, and his left knee hit the floorboard.

Smelser subsequently sued Norfolk under FELA, alleging that Norfolk negligently failed to maintain the shoulder belt of the company truck he was driving and that this negligence caused his back injuries and aggravated his neck injuries which were initially caused by the rear-end collision.[1] Smelser claimed he was permanently disabled and could no longer perform his job; he sought damages for lost wages and benefits, medical expenses, pain and suffering, and the lost capacity to enjoy the pleasures of life. Smelser also filed suit against the driver of the other vehicle involved in the August 1989 accident, seeking damages for the same injuries alleged in this suit. That suit was filed in the Ohio Court of Claims because the driver was an agent of the State of Ohio.

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[1]Smelser's complaint names both Norfolk Southern Railway Company and Norfolk & Western Railway Co. as Defendants, characterizes them as "closely interwoven corporations" and alleges he is an employee of both. Both Defendants are collectively referenced here as "Norfolk."

The pick-up truck Smelser was driving on August 29, 1989 was involved in an accident two months earlier in June of 1989. Smelser, the driver, testified that in the June accident his safety belt held him in place and left some marks on his neck and shoulder. He reported the accident to his supervisor and showed the marks to another supervisor. Although Smelser complained of soreness to his neck, he did not miss any work and did not file a claim for his injuries. He drove the truck for a while after the June 1989 accident, but the damage to the truck was repaired before the August 29, 1996 accident. The seat belt was not repaired or replaced. The owner's manual provides that the seat belt should be replaced if damaged or involved in "all but a minor collision."

Smelser's FELA action went to trial, and, after the trial court denied Norfolk's motion in limine challenging the admissibility of Dr. Huston's expert testimony, and its motions for judgment as a matter of law at the close of Smelser's case and again at the close of the entire case, the matter was submitted to the jury. The jury returned a verdict in favor of Smelser in the amount of $3.5 million. Norfolk then filed a motion for judgment as a matter or law and/or a motion for a new trial pursuant to Fed. R. Civ. P. 50 and 59. It also filed a motion for an order of remittitur. The trial court denied Norfolk's motion for judgment as a matter of law and its motion for a new trial,

but granted its motion for an order of remittitur. Judgment was entered on March 31, 1995 reducing the verdict to $1,668,000.

II.

A. Admissibility of Expert Testimony Under Fed. R. Evid. 702

At trial, Smelser called Dr. Ronald Huston, a biomechanical engineer, to testify as an expert, and he rendered an opinion that (1) the shoulder belt, but not the lap belt, in the company truck was defective, (2) these circumstances worked together to cause Smelser's body to jackknife at the waist, and (3) the defective shoulder belt, not the rear-end collision, caused Smelser's back injuries and aggravated the neck injuries which were initially caused by the rear-end collision. Norfolk does not object to Dr. Huston's qualifications to testify as a biomechanical engineer. Rather, Norfolk argues that Huston's opinion testimony should have been excluded because the methodology underlying his opinions on defect and causation is unreliable, and his opinion on causation goes beyond his expertise in biomechanics. We agree.

"The Federal Rules of Evidence require a judge to undertake 'a preliminary assessment of whether the

reasoning or methodology underlying the testimony is scientifically valid and of whether that reasoning or methodology properly can be applied to the facts in issue.'" *Frymire-Brinati v. KPMG Peat Marwick*, 2 F.3d 183, 186-87 (7th Cir. 1993) (quoting *Daubert*, 509 U.S. at 592-593). Had the trial court adequately performed its gatekeeping functions as set forth in *Daubert*, Huston's expert testimony would not have been admitted into evidence.

1. Standard of Review

In *Cook v. American Steamship Co.*, 53 F.3d 733, 738 (6th Cir. 1995), this court set forth the standard of review to be used when examining a trial court's rulings on the admissibility of expert testimony under Fed. R. Evid. 702. Preliminary factfinding under Fed. R. Evid. 104(a), e.g., a finding that the witness is qualified to testify as an expert on a certain subject, is reviewed for clear error. *Id.* We review *de novo* the trial court's determination "whether the opinion the expert wishes to offer is properly the subject of 'scientific, technical, or other specialized knowledge'" and this includes its "determination whether 'the reasoning or methodology underlying the testimony is scientifically valid.'" *Id.* (quoting *Daubert*, 509 U.S. at

593).[2] The party seeking to have the testimony admitted bears the burden of showing "that the expert's findings are based on sound science, and this will require some objective, independent validation of the expert's methodology"; "the expert's bald assurance of validity is not enough." *Daubert v. Merrell Dow Pharmaceuticals, Inc.*, (on Remand), 43 F.3d 1311, 1316 (9th Cir. 1995), *cert. denied*, ___ U.S. ___, 116 S. Ct. 189 (1995).

2. The Trial Court's "Gatekeeping" Function

The trial court is required under Fed. R. Evid. 104(a) to answer preliminary questions regarding the admissibility of expert testimony under Fed. R. Evid. 702. The Supreme Court in *Daubert* clarified that a trial court, when performing this gatekeeping function, must use a two-step inquiry which examines the expert's opinion testimony for reliability and relevance. *Cook*, 53 F.3d at 737-78. First, the court is to determine "whether the experts' testimony reflects 'scientific knowledge,' whether their findings are 'derived by the scientific method,' and whether their work product amounts to 'good science.'" *Daubert* (on Remand), 43 F.3d at 1315 (quoting *Daubert*, 509 U.S. at 590, 593). An expert opinion that is based on

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[2] In *Cook*, this Court also observed that the trial court's assessment of whether an expert opinion will assist the jury in understanding the evidence or in determining a fact in issue is a relevancy determination that is reviewed for an abuse of discretion. *Cook*, 53 F.3d at 738.

scientifically valid principles will satisfy Fed. R. Evid. 702; an expert's subjective belief or unsupported speculation will not. *Daubert* (on Remand), 43 F.3d at 1316.

Second, the court "must ensure that the proposed expert testimony is relevant to the task at hand." *Id.* at 1315. The Supreme Court referred to this as the "fit" requirement. *Id.* When making a preliminary finding regarding an expert's qualifications under Fed. R. Evid. 104(a), the court is to examine "not the qualifications of a witness in the abstract, but whether those qualifications provide a foundation for a witness to answer a specific question." *Berry v. City of Detroit*, 25 F.3d 1342, 1351 (6th Cir. 1994), *cert. denied*, ___ U.S. ___, 115 S. Ct. 902 (1995). The trial court must determine whether the expert's training and qualifications relate to the subject matter of his proposed testimony.

When considering reliability, the trial court must focus on the soundness of the expert's methodology and not the correctness of his conclusions. *Daubert* (on Remand), 43 F.3d at 1318. The Supreme Court provided the following non-exclusive list of factors to assist the trial court in its inquiry:

> (1) whether a theory or technique can be (and has been) tested, (2) whether the theory or technique has been subjected to peer review and publication, (3) the known or potential rate of error in using a particular scientific technique and the existence and maintenance of standards controlling the technique's operation, and (4) whether the theory or technique has been generally accepted in the particular scientific field.

Glaser v. Thompson Medical Co., Inc., 32 F.3d 969, 972 (6th Cir. 1994) (citations omitted). These factors are to assist the court in determining "whether the analysis undergirding the experts' testimony falls within the range of accepted standards governing how scientists conduct their research and reach their conclusions." *Daubert* (on Remand), 43 F.3d at 1316. The Ninth Circuit has added another factor to assist the court in its inquiry: "whether the experts are proposing to testify about matters growing naturally and directly out of research they have conducted independent of the litigation, or whether they have developed their opinions expressly for purposes of testifying" because the former "provides important, objective proof that the research comports with the dictates of good science." *Id.* at 1317.

The trial court considered none of these factors. We conclude that Huston's opinion testimony cannot withstand *Daubert* scrutiny, and should not have been admitted into evidence.

a. Huston's Opinion Testimony on Seat Belt Defect

Dr. Huston testified that the first time he examined the truck's safety belt was on March 13, 1992, more than two and one-half years after the August 29, 1989 accident. Initially, he conducted a visual examination of the seat belt webbing, determined that there were stretch marks on both the lap and shoulder belt, and then measured and photographed the belts and marks. He did not examine the belts under a microscope and did not perform other tests to determine the cause or effect of the marks detected on both, i.e., whether the marks were from normal wear and tear or from being "loaded" and the consequences of that determination. He also did no testing to determine if the marks on the belts were from the June 1989 or August 1989 accidents. Nonetheless, he opined that the marks on the shoulder belt were caused by "loading" in the June 1989 accident. He rendered no opinion about the marks he observed on the lap belt. He also admitted that the presence of "load" marks on a seat belt did not permit the

conclusion that its retractor was damaged and would not work.

On the same day, following this visual inspection, Huston took the pick-up truck on a drive through suburban Batavia, Ohio and tested the seat belt. With his left hand on the steering wheel and his right hand holding the shoulder harness, Huston hit the brakes about three times while driving at 25 to 35 miles an hour and then concluded that the retractor in the shoulder belt did not catch as it should. He testified that it would be difficult to conclude much about the lap belt in that test drive because he was anticipating hitting the brakes, pushing his back against the seat, and resisting the forward motion. Nonetheless, he concluded the lap belt worked properly and the shoulder belt did not. Huston did not document the testing circumstances or results.

Huston did not conduct any further tests that day, but 20 months later, in November of 1993, he tested the retractor assembly of the shoulder belt outside the company truck. To determine whether the locking mechanism was functioning properly, Huston held the assembly in his hand, tilted it in certain directions, pulled out the webbing, and measured the angle at which it locked, if at all, with a protractor. During this test, he assumed, despite his admission that the mounting position varies from vehicle to

vehicle, that the mounting plate for the seat belt in the company vehicle was at zero degrees, and then tested it against a Federal Motor Vehicle Safety Standard ("FMVSS") which requires the mechanism to lock at 35 degrees. Huston admitted that (1) his test results would be inaccurate if the mounting plate was not at zero degrees in the company truck, (2) he never inspected the vehicle or its factory specifications to ascertain the precise degree of the mounting plate, and (3) although he performed this test "about a hundred times," he took measurements only five or six times. Nonetheless, he concluded that the shoulder belt did not lock at the angle it should.

Based upon his test results, Huston rendered the opinion that the shoulder belt was defective but the lap belt was not. He further opined that, due to these factors, Smelser's body jackknifed or bent around the belt upon impact, causing the injuries to his lower spine and aggravating his neck injuries which, unlike the back injuries, were initially caused by the rear-end collision.

Daubert teaches that expert opinion testimony qualifies as scientific knowledge under Rule 702 only if it is derived by the scientific method and is capable of validation. Huston's opinion that the shoulder belt, but not the lap belt, failed in the August 29, 1989 accident cannot be based on "good science" when he (1) failed to perform

any tests on the lap belt yet concluded it was in proper working condition; (2) conducted no testing to verify his conclusion the shoulder belt was damaged in the June 1989 accident; (3) failed to adequately document testing conditions and the rate of error so the test could be repeated and its results verified and critiqued; and (4) failed to discover, use or at least consider the degree the restraint system was actually mounted at in the subject vehicle and explain whether that information would affect his pendulum test for compliance with the federal safety standard. Smelser failed to establish that any of Huston's seat belt tests were based on scientifically valid principles, were repeatable, had been the subject of peer review or publication or were generally accepted methods for testing seat belts in the field of biomechanics. Accordingly, Huston's opinion testimony that the pick-up truck's shoulder belt, but not the lap belt, was defective should have been excluded.

b. Huston's Causation Opinion

Huston's opinion testimony about causation also should have been excluded. First, it goes beyond his expertise in biomechanics. Second, the opinion lacks reliability.

During preliminary questioning, Huston explained that biomechanics apply the principles in mechanics to the facts of a specific accident and provide information about the forces generated in that accident, explain how the body moves in response to those forces, and thus determine what types of injuries would result from the forces generated. Huston admitted that biomechanics are qualified to determine what injury causation forces are in general and can tell how a hypothetical person's body will respond to those forces, but are not qualified to render medical opinions regarding the precise cause of a specific injury. He acknowledged that each individual person has his own tolerance level, and therefore, admitted he could testify only in general terms, i.e., that "X" forces would generally lead to "Y" injuries and "Y" injuries are consistent with those the plaintiff claims to have suffered.

Huston also admitted that (1) he was not a medical doctor, had no medical training, and must rely on a medical doctor's opinion to determine a particular individual's injuries; (2) each individual has his or her own tolerance level and pre-existing medical conditions could have an effect on what injuries result from an accident; and (3) he had not examined Smelser's complete medical history. Nonetheless, the trial court permitted Huston to testify that:

> the failure of the seat belt, the shoulder belt webbing to lock directly, led to the injuries. The neck injury, in my opinion, was caused by the rear-end collision, with the neck being thrust backward. And then the failure of the shoulder belt allowed the shoulder to go forward, aggravating that injury, causing it to go back further. And at the same time then the lumbar region came from what might be called a jackknifing or a bending around the belt, causing the injury to the lower spine.

This opinion testimony goes beyond Huston's expertise in biomechanics. As he previously admitted, he was qualified to render an opinion that made use of his discipline's general principles, described the forces generated in the August 1989 rear-end collision, and spoke in general about the types of injuries those forces would generate. Huston is not a medical doctor who had reviewed Smelser's complete medical history, and his expertise in biomechanics did not qualify him to testify about the cause of Smelser's specific injuries. As this court observed in *Berry*, "[t]he issue with regard to expert testimony is not the qualifications of a witness in the abstract, but whether those qualifications provide a

foundation for a witness to answer a specific question." *Berry*, 25 F.3d at 1351.

Huston's causation opinion has additional flaws. It is based upon the assumption that Smelser had no similar neck or back injuries prior to the August 29, 1989 accident. Huston makes this assumption despite his admissions that (1) information about prior back or neck injuries is important and could affect his causation opinion; (2) he had reviewed only four x-ray reports, not Smelser's complete medical history; (3) he did not consider the fact that Smelser complained of neck soreness after the June 1989 accident; and (4) he had not reviewed Smelser's deposition or discussed with him his symptoms or his version of how his body moved during the accident. Cross-examination at trial produced uncontroverted evidence that Smelser had been treated and hospitalized for back injuries since as early as 1968 and 1971, and his x-rays taken after the accident showed signs of degenerative conditions that could not have been caused in the August 1989 accident. Huston's causation opinion failed to consider this admittedly important information, and therefore cannot be considered reliable. Accordingly, it should not have been admitted.

B. Directed Verdict

We review *de novo* the trial court's decision to deny Norfolk's motion for judgment as a matter of law brought pursuant to Fed. R. Civ. P. 50(a) at the close of Smelser's case and apply the same standard the trial court should have applied when considering Norfolk's motion.[3] *Aparicio v. Norfolk & Western Ry. Co.*, 84 F.3d 803, 806 (6th Cir. 1996). In the usual case, "this standard requires the district court to decide whether a reasonable jury could conclude that the plaintiff has not proven an element of his or her case." *Id.* at 807. The court must make this determination by looking only at the plaintiff's evidence and "[w]ithout weighing the evidence or judging the credibility of witnesses, and drawing all inferences in favor of the nonmoving party." *Id.* In FELA cases, however, a different standard applies. *Id.* The court still considers only the plaintiff's evidence, does not weigh the evidence or judge the credibility of witnesses, and draws all inferences in favor of the nonmoving party, but then determines whether the plaintiff has presented more than a

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[3]Fed. R. Civ. P. 50(a) provides that:

> If during a trial by jury a party has been fully heard on an issue and there is no legally sufficient evidentiary basis for a reasonable jury to find for that party on that issue, the court may determine the issue against that party and may grant a motion for judgment as a matter of law.

scintilla of evidence on each element of his or her FELA case.[4] *Id.* at 810.

At issue here is Smelser's presentation of evidence that Norfolk's negligence played some part in causing his injuries. The only negligence attributable to Norfolk flows from Smelser's claim that the shoulder belt in the company truck was defective. Huston is the only witness whose testimony connects Smelser's injuries to the allegedly defective shoulder belt apart from the rear-end collision. Absent this improper testimony, we find Smelser failed to meet his burden by presenting more than a scintilla of evidence that Norfolk's negligence played any part in causing his injuries. Therefore, Norfolk's motion for a directed verdict should have been granted pursuant to Fed. R. Civ. P. 50(a).

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[4]The elements of a FELA case are:

> (1) an injury occurred while the plaintiff was working within the scope of his or her employment with the railroad, (2) the employment was in the furtherance of the railroad's interstate transportation business, (3) the employer railroad was negligent, and (4) the employer's negligence played some part in causing the injury for which compensation is sought under the Act.

Aparicio, 84 F.3d at 810.

III.

The jury verdict against Norfolk is REVERSED, and the case is REMANDED for an entry of judgment as a matter of law in favor of Norfolk. Fed. R. Civ. P. 50(a).

APPENDIX B

UNITED STATES DISTRICT COURT
FOR THE SOUTHERN DISTRICT OF MICHIGAN

JUDGMENT

Civil No. C-1-92-649
entered May 3, 1994

APPENDIX

United States District Court

SOUTHERN DISTRICT OF OHIO

Charles Smelser,
Plaintiff-Appellant,

v.

Norfolk & Western Railway Co.,
Defendant-Appellee.

JUDGMENT IN A CIVIL CASE

Case No. C-1-92-649

☒ **Jury Verdict.** This action came before the Court for a trial by jury. The issues have been tried and the jury has rendered its verdict.

☐ **Decision by Court.** This action came to hearing before the Court. The issues have been heard and a decision has been rendered.

IT IS ORDERED AND ADJUDGED that the issues are found joined in favor of Plaintiff Claude Smelser, and damages are awarded in the amount of THREE MILLON FIVE HUNDRED THOUSAND DOLLARS ($3,500,000.00).

May 3, 1994
Date

Kenneth J. Murphy, Jr.
Clerk
/s/ Elizabeth S. Zchaeffer
(By) Deputy Clerk

APPENDIX C

UNITED STATES DISTRICT COURT
FOR THE SOUTHERN DISTRICT OF MICHIGAN

ORDER

Civil No. C-1-92-649
entered July 22, 1995

UNITED STATES DISTRICT COURT
SOUTHERN DISTRICT OF OHIO
WESTERN DIVISION

Claude I. Smelser, *Plaintiff*,	]	
v.	>	Civil Action No. C-1-92-649
Norfolk & Western, Railway Company, *Defendant-Appellee.*	]	

Order: 1) Denying Defendant's motion for judgment as a as a matter of law and motion for a new trial; 2) continuing under submission defendant's motion for order of remittitur

This action brought pursuant to the Federal Employers Liability Act (FELA), 45 U.S.C. §51, et seq., came before this Court on consent to trial and entry of final judgment by a United States Magistrate Judge. A five-day trial by jury was held, beginning on April 26, 1994, and on May 3, 1994, the jury returned a verdict for plaintiff and against defendant

in the amount of $3,500,000.00.

Before this Court is defendant's motion for judgment as a matter of law and/or motion for a new trial, and motion for order of remittitur (doc. 66), and plaintiff's memorandum in opposition (doc. 67).

Defendant seeks judgment as a matter of law on the grounds that plaintiff failed to provide sufficient evidence for a jury to render a verdict in plaintiff's favor. See Fed. R. Civ. P. 50, McDowell v. Rogers, 863 F.2d 1302 (6th Cir. 1988). Plaintiff seeks a motion for a new trial pursuant to Fed. R. Civ. P. 59 on the grounds the verdict is against the manifest weight of the evidence, alleged errors of omission and commission in the jury charge and in the admission and rejection of evidence during the trial, and the jury verdict was excessive.

Having reviewed the arguments of both parties and for the reasons stated on the record during the trial, the Court finds defendant's motion for judgment as a matter of law and said motions are hereby **DENIED**.

Defendant has also alleged an excessive verdict, raising the issue of whether the award exceeded the amount which, under the evidence in the case, was the maximum that a jury could reasonably find to be compensatory for

F. Supp. 470, 481 (S.D. Ohio 1990), citing Manning v. Altec, Inc., 488 F.2d 127, 132 (6th Cir. 1973). In order to aid the Court in giving this issue additional consideration, defendant is ordered to submit a supplemental memorandum in support of its motion for a remittitur within twenty (20) days after entry of this Order. Plaintiff may submit a reply memorandum within ten (10) days after the date of service of defendant's memorandum.

IT IS SO ORDERED.

/s/ JACK SHERMAN
JACK SHERMAN
UNITED STATES MAGISTRATE JUDGE

DATED: JULY 22, 1995

APPENDIX D

UNITED STATES COURT OF APPEALS
FOR THE SIXTH CIRCUIT

ORDER

Sixth Circuit Case No. 95-3489/3529
Filed March 7, 1997

Nº. 95-3489/3529

UNITED STATES COURT OF APPEALS
FOR THE SIXTH CIRCUIT

CLAUDE I. SMELSER,
Plaintiff-Appellee/Cross Appellant,
v.

NORFOLK SOUTHERN RAILWAY COMPANY,
Defendant,

NORFOLK AND WESTERN RAILWAY COMPANY,
Defendant-Appellant/Cross-Appellee.

ORDER - Filed March 7, 1997

Before: **NORRIS** and **COLE**; Circuit Judges;
EDMUNDS, District Judge.*

*Hon. Nancy G. Edmunds, United States District Judge for the Eastern District of Michigan, sitting by designation.

The court having received a petition for rehearing en banc, and the petition having been circulated not only to the original panel members but also to all other active judges of this court, and no judge of this court having requested a

vote on the suggestion for rehearing en banc, the petition for rehearing has been referred to the original panel.

The panel has further reviewed the petition for rehearing and concludes that the issues raised in the petition were fully considered upon the original submission and decision of the case. Accordingly, the petition is denied.

ENTERED BY ORDER OF THE COURT

/s/ Leonard Green, Clerk

APPENDIX E

TRANSCRIPT OF DR. HUSTON

RONALD HUSTON having been first duly sworn testified as follows:

DIRECT EXAMINATION BY MR. KENNEDY:

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Q. Dr. Huston, could you state your name and your business address, please?

A. Yeah, my name is Ronald -- or Ron -- Huston and I work at the University of Cincinnati. I'm a professor there in the Department of Mechanical, Industrial and Nuclear Engineering.

Q. Do you hold any other position other than the University of Cincinnati faculty?

A. Well, I've over the years had a number of different positions. I have been an administrator. I was until just this academic year the Director of the Industrial Engineering Program. I'm currently also the Director of the Institute for Applied and Disciplinary Research. That's part of the university.

Q. That's a position at the university?

A. Yes. That's right.

Q. How long have you been at the university, Doctor?

A. Well, see, I started in 1962, so now I'm finishing 32 years.

Q. What kinds of teaching duties do you have?

A. Well, over the years, I taught courses in a variety of areas generally related to engineering and mathematics. In recent years, I've taught courses in dynamics, and mathematics, and also in biomechanics.

Q. Could you explain to the jury what biomechanics are? What biomechanics is?

A. Well, perhaps, it would be best to first talk about mechanics. My education is in the field of mechanics and mechanics has to do with the study of motion forces, strength of materials, the way bodies behave and the way they interact with each other. Mostly the study of mechanics is used for the design of machines, building vehicles, automobiles, washing machines, things that mechanical designers do. However, mechanics also can be used in studying the way any system operates and even living systems, such as the human body. And whenever mechanics is applied in the study of the behavior of the human body, such as in support mechanics or walking or sitting or doing work, that area of study is usually called biomechanics.

Q. Do you teach a course in biomechanics?

A. Yeah, I have taught biomechanics now since probably about 1968. So close to, oh, 20, 25 years.

Q. Have you published any articles on biomechanics?

A. Well, yeah, at the university part of my assignment is to conduct research in my field of interest and that being mechanics, I have been able to find some support for the research and much of that research was in the area of biomechanics. I was doing work for the Navy, and their concern was with pilot safety during the Vietnam War and then also for NASA and their concern was with the astronaut safety. And as a result of some of this research, I was able to publish a number of articles related to that or just providing or the summarizing the results of the research.

Q. I may have miss missed this, Doctor. Did you say what level you taught the biomechanics course at?

A. Well, the biomechanics course is a dual level course. It's taken as an elective by seniors, but mostly the Population is first and second year graduate students.

Q. Tell the ladies and gentlemen of the jury, if you would, what your education is.

A. Well, I'm a native of Western Pennsylvania. I grew up in the Johnstown area which is about 70 miles southeast of Pittsburgh, and I graduated from high school there in 1955 and then I went on to study in college at the University of Pennsylvania, which is in Philadelphia. I studied mechanical engineering and received a Bachelor of Science degree in 1959. And then following that I studied briefly at Virginia

Polytechnic Institute in Blacksburg, but I returned to Philadelphia and went on and did graduate work at the University of Pennsylvania. I received a Master of Science...

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looking at the back, it's dated, August 11, 1992, so it's not current. I have a current version.

Q. Okay.

A. But in this -- would you rather I used the current version.

Q. Yes, Doctor, if you would.

A. Oh, okay, in the current version, I have listed on the second page the contents and then there are listed within this set of pages, and it's a big document, because it's a academic resume and the universities encourage publications. I have listed the journal articles and conference papers that I have published. I wasn't clear. Did you want me to identify some of those articles?

Q. What I'd like you to do is give the jury an idea, if you can, of the number of publications in terms of how often you publish?

A. All right, I have made or written over 104 journal articles. Now a journal article is an article that you

send off to a periodical and it receives review by persons and then it becomes part of what is called the archival literature so you can find this in libraries throughout the nation, around the world. I have also presented papers at conferences, at meetings, most of these are published in conference proceedings and of those papers there were 125 of them. I have written or edited seven books. I had 38 book reviews, published book reviews and have prepared 47 reports. The reports have been prepared summarizing the results of the research primarily for the sponsoring agency.

Q. Doctor, I'll put it publications up to the present time?

A. Yes, I was working on a paper just yesterday --

Q. Okay.

A. -- as a matter of fact.

Q. Now, can you give the jury an idea how many of those publications, a number of those publications which relate restraint systems or seat belts?

A. Oh, I'd say a good many of them. Certainly not all of them, of course. But many of them have to do with either seat belts or injury causation. Just glancing through this, I see an article on pedestrian impact by automobile hoods. see articles on rehabilitation. I see an article on the seat belts in several accident scenarios. I see an article on the effect of safety in human factors, and that relates

directly to seat belts. Here is one on crash victim simulation. One on head, in this case, dynamics during accidents.

Q. Would these last articles that you're mentioning be related to biomechanics?

A. Yes, all biomechanics. All relating to injury or injury causation forces. All would be related to biomechanics.

Q. Doctor, by way of explanation, could you describe in a little more detail what biomechanics is, perhaps, by comparing it to regular mechanics on one side and then perhaps by comparing it to what a doctor does or an orthopedic surgeon does on the other side?

A. Oh, okay. Well, I'm not --

MR. BROCKMAN: If I might object, Your Honor, I mean, this gentleman is not qualified to talk about what a doctor does or does not do. I mean, I have no objection to him explaining to this jury what his field of biomechanics is compared to the economics. But as far as what an orthopedic surgeon does, he's not a medical doctor.

THE COURT: For comparative purposes, I'll permit him to testify. Overruled.

A. I was about to say that I'm not a medical doctor, and so therefore, I don't do --I do some research in the medical field, but I'm certainly not a practicing clinician. I don't make diagnoses of injuries, but --

Q. Doctor, before you go on, I'm sorry to interrupt, do you lecture at the medical school?

A. Yes, I have been active and interacting with physicians at the medical school for a number of years. Currently I'm working with some physicians and we're setting up a spine research laboratory. I'm also a director of the Monarch Foundation where we're looking at the causes and prevention and treatment of osteoporosis. But as I was saying, I'm not myself a medical doctor. What I do is provide the principles in mechanics as it would relate now, let's say, to accidents I would provide the principles in mechanics which provide information about forces and stresses and strength and strain and dynamics as a means of determining what are the forces which might cause an injury. Let's say a bone is broken, then given the conditions under which the bone is broken, I can then use that information and attempt to calculate the forces which would be exerted on bone and then knowing something about the properties of the bone determine whether those forces were sufficient to have caused the breakage of the bone. My understanding what the medical doctors would do is

they would diagnose, yes, the bone is broken and then proceed with the rehabilitation and the treatment, and of course, I don't get involved in that.

Q. Are you familiar with the educational process that medical doctors go through?

A. Well, to some extent. I haven't been to medical school, but they, of course, specialize. At the end, the physicians I work with primarily are the orthopedic surgeons.

Q. To your knowledge, do they study the kind of thing that biomechanics is concerned with in medical school?

A. As far as I know, they don't study. They have requirements to get into medical school, which are basic science requirements where they will have studied among other things elementary physics so that they will have some understanding of the principles of physics, but they would not go into the area of mechanics as someone who is practicing mechanics, that is they wouldn't get into advanced mechanics or computer requirement vehicles for algebra and all the mathematics associated with advanced mechanics just wouldn't be time.

Q. Doctor, when were you first contacted about this case?

A. Let me check my file. Yes, on September the -- excuse me, on March the 12th of 1992, a little over

two years ago.

Q. And who contacted you?

A. Well, I was contacted by a partner of yours, or colleague of yours, Carl Zugelter, who is an attorney.

Q. What were you asked to do by Mr. Zugelter at that point?

A. Well, he wasn't very specific about what was involved. He said that there had been an accident and that there may have been a problem with a seat belt in a vehicle and he wanted me to come out to his office where he said that the vehicle would be, and see if I could inspect the seat belt.

Q. What information was given to you at that time?

A. Well, I was told that there was -- there had been an accident, that there had been an accident with an injury, and that it was believed, or supposedly, that the injury occurred because the seat belt didn't work properly and that there may have been a problem with the seat belt.

Q. Did you eventually have an opportunity to examine the seat belt assembly in a pickup truck?

A. Yes, sir, I did.

Q. When did that occur?

A. Let's see, that was on -- well, the next day, March 13 of 1992, I went out to Batavia and saw the truck.

Q. Oh, who was present at that meeting, Doctor?

A. Well, Mr. Zugelter was there and also Mr. Smelser, who was reportedly involved in the accident and operating the truck, and I believe there was another gentleman there, but I don't know if I remember his name.

Q. What information were you given at that time?

A. Well, very little except that there is -- it seemed as though the belt didn't -- didn't work. I was told, as I recall by Mr. Smelser, that the belt -- or the truck -- had been involved in an accident previous to that. He didn't tell me anything about the accident, but that it had been involved in an accident prior to that. I asked him then, well, is this the same belt that was in the accident, the accident, the first accident as well as the second. And he said, yes, it hadn't been changed.

Q. Did he tell you anything at that point, anything about the reaction of the belt in the first accident?

A. No, he didn't say anything about that.

Q. Were you given that information eventually by anyone?

A. Well, I understood eventually that he had been operating the vehicle and that the belt had been loaded.

Q. Were you given any information at that point about what occurred in the automobile accident on August 29, 1989?

A. No, I wasn't. I assumed, or I may have been told that it was rear-end collision, but I had not at that time had an opportunity to look at the accident report, so I didn't know anything about that. I was simply called out to look at the seat belt to see if I could determine whether it was functioning properly.

Q. Did you then proceed to examine the seat belt assembly?

A. Well, yes I did that. I looked at the truck, and I looked at the belt and observed it, saw that it had showed some evidence of loading, that is, the webbing itself was frayed, and then I wasn't able to really do much more without trying to operate the belt, so I asked if it would be all right if I tested the belt by driving the truck and seeing if the belt would provide restraint in a certain stop, and I proceeded to do that.

Q. Did you take any pictures of the belt eventually?

A. Yes, I did.

Q. Was that after the road test that you did?

A. I don't remember if it was after or before.

Q. Okay.

A. But it was on the same day.

Q. Well, before we go any further, let me just hand you the binder and ask you to look at what has been marked Exhibit Number 17.

A. Yes, Exhibit 17 are copies of photographs and they are, unless I'm mistaken, the photographs that I had provided, yes. That's right. They provided -- those are photographs that I took and provided to Mr. Zugelter.

Q. Are those photographs accurate representations of the way the truck and seat belt assembly looked on that date?

A. Well, yeah, to the extent that a photograph can do that. These aren't too bad. They are pretty good photographs in that sense. They have a number of views of the truck, itself. It's a yellow pickup truck and then the photographs in the beginning show the belt and some stretch marks on the belt. So, in that sense they are okay.

Q. In regard to that truck, did you record what year and type truck it was?

A. Oh, yes. Let me look in my notes on that. Yeah. What I determined was that this was a 1984 Chevrolet Custom Deluxe 20 pickup truck. Vehicles are identified by a vehicle ID number, a long number, and every vehicle has one. I wrote this one down at 1GCGC24M5EJ177661.

Q. And was the truck equipped with seat belts?

A. Yes, it had -- well, it was a pickup truck, so it had seat belts in the seat for the passenger and the driver. I was looking primarily at the driver's seat belt.

Q. Were the seat belts the same kind of seat belt for passenger and driver?

A. Yes, as far as I know.

Q. Okay.

A. And these weren't commonly called three point belts.

Q. Could you explain what a three point seat belt is to the ladies and gentlemen of the jury, please.

A. Well, three point seat belt is the common seat belt that you find in almost all cars today. It's called three points because there are three points of attachment. For example, if you get in your automobile and if it doesn't have an automatic belt, you get in, you buckle up. What you do is you reach over your shoulder and buckle a buckle on your right hip. What happens then is across your lap is a belt called a lap belt. It's attached on the right side and the left side. And then going across your shoulder is a shoulder belt, which is attached at a point on the right hip and point up, above the point up above and the right side and left side are the three points and that's why it's called a three point system.

Q. Do the lap belt and the shoulder harness function in the same way, Doctor?

A. Well, they vary from vehicle to vehicle. Some lap belts don't have what is called an automatic locking retractor. That is, they simply pull out or they don't

have what is called an emergency locking retractor. They have an automatic retractor, and you can make them as tight as you want by synching them. Some single webbing. Some have two webbings that is sewn together at the latch plate. This particular belt in this truck had two belts. A separate lap belt and separate shoulder belt and each belt had its own retractor. The belts were sewn together at the webbing.

Q. Okay.

A. So, in this case, the lap belt and the shoulder acted much the same.

Q. In terms of reaction and the restraining ability of the belt, was the shoulder belt the same as the lap belt?

A. Well, I'm not sure I understand the question. The lap belt, of course, would provide restraint in the pelvis area, and the shoulder belt in the upper area. In my test I didn't find them to be the same in their effectiveness.

MR. BROCKMAN: Your Honor, if I could pose an objection at this point for what we talked about at side bar. I would like the opportunity to voir dire the witness.

THE COURT: All right. I'll give you that opportunity. That would be outside the presence of the jury.

MR. BROCKMAN: Yes, please, Your Honor.

THE COURT: The question I have, I hate to run this jury in and out so often. Ladies and gentlemen, that happens at the trial. It's the proper thing to do at this time. But I'm looking at my watch and noticing that it's close to lunchtime, so what I'm trying to figure out what would be the best way to do it.

I have a commitment at noon, so what I suggest we do is we can recess the jury for lunch, we could stay here, give you an opportunity to voir dire, and then we can take our lunch.

Ladies and gentlemen of the jury, there will be a lunch period. We'll start. Now, I ask that you come back at 1:30 and remember my earlier instructions not to discuss the case among yourselves or with anyone else. We'll excuse the jury at this point for lunch.

(Jury excused.)

MR. BROCKMAN: All right.

VOIR DIRE EXAMINATION

BY MR. BROCKMAN:

Q. Mr. Huston, as you know, my name is Jim Brockman. We have met before, have we not?

A. Yes, of course.

Q. You are a mechanical engineer by training, aren't you, Mr. Huston?

A. Yes, my first degree is mechanical engineering.

Q. You have never been actually involved in the design of a seat belt for a passenger vehicle, have you?

A. Not for automobiles, that's right.

Q. And you have never been involved in the design -- strike that -- retained by a car manufacturer to design such a seat belt, have you?

A. No, I have not.

Q. You haven't been retained by a car manufacturer to inspect a seat belt, have you?

A. Well, in my work in litigation, I have been involved in that kind of work.

Q. Out of your litigation work?

A. No, sir.

Q. Have you been retained by a seat belt manufacturer to design a seat belt?

A. No, I have not.

Q. Have you been retained by a seat belt manufacturer to evaluate and inspect a seat belt?

A. No, sir, I have not.

Q. Let's talk just briefly, if we could, sir, about your testing involved in the examination of this seat belt?

A. Um-hmm.

Q. In this truck all right --

MR. KENNEDY: Your Honor, I don't mean to interrupt, but Mr. Smelser needs to excuse himself. I think this might be a time that he could do that and we can go on.

THE COURT: All right. Do you have any objections of proceeding with voir dire in his absence?

MR. KENNEDY: No, Your Honor.

THE COURT: For the record then, Mr. Smelser waives his right to be here during the course of the voir dire, and he's excused. Thank you, sir.

MR. KENNEDY: Thank you. (Mr. Smelser was excused.)

BY MR. BROCKMAN:

Q. What you did on March 13, 1992, sir, was first of all look at the seat belt with your eyes?

A. Yes. I visually inspected it.

Q. And you looked at it while it was in this truck and took the photographs that you just talked to Mr. Kennedy about, correct?

A. Yes, sir.

Q. You did not examine the seat belt under a microscope then, did you?

A. I don't believe So. I don't know if I used a magnifying glass or not, but probably not, as I recall.

Q. You didn't use a magnifying glass nor a microscope, did you?

A. As far as I recall, I did not.

Q. And you did not at any time up to today look at this seat belt under a microscope or a magnifying glass, did you?

A. As far as I know, that's correct.

Q. Did you even take measurements of the seat belt?

A. On the 13th?

Q. Yeah.

A. Well, I took measurements as to where there were stretch marks on the belt.

Q. You had a tape roll with you?

A. Yes, sir.

Q. Okay. Did you have any other tools with you that day other than a pen, piece of paper, and your tape measure?

A. Well, I would have had my camera, of course, and some tools in with me that are with my camera. I probably would have also had a protractor and a device for measuring distances along the roadway.

Q. You didn't use a protractor that day, did you?

A. Not in this matter.

Q. You didn't use it in this matter that day, use the measuring device for measuring distances on the roadway?

A. The wheel, yes. I call that "the wheel."

Q. You didn't use that, did you?

A. No. Not in this case.

Q. And so before you jumped in the truck, itself, to take it on these test drives that you just told Mr. Kennedy about, you looked at it, took photographs, and took some measurements of the marks on the webbing?

A. Right.

Q. And then you jumped in the truck, correct?

A. Well, I didn't jump in; I got in the truck in the usual way.

Q. Casually got in the truck and began driving it around downtown Batavia; is that right?

A. That's correct.

MR. KENNEDY: Interpose an objection. Because I misunderstood. I thought this was voir dire on the qualification. This sounds like cross-examination on the test, itself.

MR. BROCKMAN: It's a two-point argument, Your Honor, that I have I told this Court about earlier. We would be discussing, one, which I'm not getting -- I'm not

there yet. Has to do with what we talked about, the qualifications about medical cause and effect opinion. The other has a miscellaneous response pronunciation by the Supreme Court. Dalbert versus Merrell Dow expert testimony. That particular case talked about this Court and all Courts basically exercising what is referred to as a "gate-keeping function" to make a preliminary determination as to whether or not any expert's testimony is based on foundation and scientific principles, and that's where I'm heading with the testing, as looking and seeing and touching of the seat belt, itself. That's where I'm heading first and getting into the medical qualifications about the cause and effect medical opinions.

THE COURT: May I see the case?

MR. BROCKMAN: Certainly, Your Honor.

THE COURT: I have heard of the case but I have not read it.

MR. KENNEDY: I assume this testimony, and I could be wrong, is not going to be repeated, these questions won't be repeated in front of the jury?

MR. BROCKMAN: I can't tell you that. Some of it might; some of it might not.

THE COURT: All right. I have just looked over the head notes. Is it your understanding that this case stands for the proposition that expert testimony has to be based upon some scientific accepted principles?

MR. BROCKMAN: No. What it does, Judge, is it talks about the idea that before an expert renders opinions that the trial court has an independent duty to assess the foundation for those opinions, whether it be scientific what has happened what the person has done before those opinions are rendered in front of the jury. But you have got to make that independent decision, is this a scientific or a reasonable opinion based on what the witness is talking about, the witness has done in the case. That's what I'm pursuing. This thing based upon what this gentleman told me in his deposition earlier, what he did to come to the conclusions that he's getting ready to render, and the reason I asked for opportunity at the time is because Mr. Kennedy started getting to the point what happened while you're driving the vehicle around.

THE COURT: Well, I'll permit you to continue.

BY MR. BROCKMAN:

Q. So, you casually got in the truck and began to drive it around downtown Batavia, correct?

A. Well, not in downtown. I went out in the suburban part.

Q. And what you did, sir, to test the sensitivity of this seat belt at that time was sat behind the wheel, had the seat belt attached, correct?

A. Yes.

Q. And you would hit the brakes periodically, correct?

A. Yes, that's right.

Q. And, what, you had your right hand, I think it was on the shoulder harness, the shoulder part?

A. That's right.

Q. Okay. You would try to get up to speed between 25 and 35 miles an hour and hit the brake and see if it felt like the belt caught, am I right?

A. Yes, to determine if it would be clear if it caught or not.

Q. And you did that just by holding on to the belt?

A. Yes, that's right.

Q. You did not in that test at all have any kinds of other tools that measured whether or not the retractors worked properly or anything else about the belt? It was your hand holding on to the belt?

A. Yes, that's right. It was the hand holding on to the belt. The belt, of course, will lock by the retractor, and so holding on to the belt is a test of the effectiveness of the locking of the retractor.

Q. You did that about three times?

A. I don't remember. It was fewer then five, probably be more than a couple, so three sounds to be about right.

Q. You did not take any notes as to each test in the sense of I got to 25 miles an hour, I was at this particular point, and I hit the brakes, correct?

A. Right. Well, I did -- I noted that I did these tests. have that written here at speeds of 25 to 35 miles per hour.

Q. What I'm getting at, sir, other than writing down what the speed was, you didn't record simultaneously the parts of each particular test, did you?

A. I'm sorry, I don't understand the question.

Q. Other than recording what the general speed was, 25 to 35, that range?

A. Um-hmm.

Q. You did not take a note that says test one, at the intersection of such and such?

A. Now I understand.

Q. To a point?

A. I didn't do that.

Q. You were by yourself?

A. Yes.

Q. There is a scientific principle, is there not, sir, called "reliability"? Meaning being able to do a test over and over again and get the same results?

A. No, that's "repeatability".

Q. I'm sorry, "repeatability," and the other concepts of reliability in the papers, you write one of the reasons people review them is to try and look at methodologies and things like that to see if it happens the way that you have documented in your research?

A. That's part of the review, sure.

Q. Okay, and that's part of the scientific process of reviewing and understanding what people have written in the literature and whether it's a good sound research or not good sound research?

A. Yes, that's part of the process.

Q. And the reason that people make these records about experiments and things like that is to be able to document that and have people like you try and repeat it and see if they come up with the same thing or something different, correct?

A. Well, that's one of the purposes, yes.

Q. And you didn't do that in this case because you have just got a general note, "25 to 35 miles an hour," right?

A. Well, no. That's not correct and it's misleading. I wasn't in this case writing a paper, I was simply attempting to determine if there was a problem with the retractor or not. When I did the driving test, it was clear to me that it wasn't working the way that it should have been working, if it was working properly. Therefore, I simply suggested that the

retractors need to be taken out of the vehicle and examined.

Q. When you were doing this driving around and hitting the brakes, you didn't even get out and try and measure the coefficient of friction of the roadway, did you?

A. No. That isn't necessary, because all I needed to do was to decelerate the vehicle by .7 of a G, which I was able to do, and I found that the belt was insensitive. It didn't lock as it was supposed to have.

Q. How do you mean, by just slamming on the brakes that between 25 and 35 miles an hour you're decelerating at .7 Gs?

A. Generated decelerate to .7.

Q. Position hip level, also?

A. Retain hip level upper torso, go forward.

Q. I'm sorry, back up a little bit. You felt your body go forward and that's what leads you to believe that you got up to .7 Gs?

A. Oh, sure.

Q. Were you -- would the seat belt, the lap portion of it, restrain you by itself?

A. It did. It restrained me at the pelvis area.

Q. Okay. The next thing you did after performing this drive around downtown, pardon me, around Batavia a situation where you got the seat belt again, didn't you remove the assembly?

A. No, sir, that's not correct. It was sometime after that. It wasn't really until November of 1993 that I was able to lock the belts outside of the vehicle.

Q. Other than what you did on March 13, 1992, until you got the assembly, itself, you did no further testing or examination of the seat belt?

A. Right.

Q. That's what I was trying to establish. The next thing you did is you got the assembly, itself, correct?

A. Yes, I did.

Q. And you had the assembly in your hand, and I think you told me you held it and tilted it in certain directions and measured it in angle with a protractor?

A. That's right.

Q. So see if this locking mechanism would lock or not?

A. That's right.

Q. Again, looking at your notes, you did not take an individual notation for each individual time you did that, did you, sir?

A. No, as a matter of fact, I did that many times. I did that maybe close to a hundred times.

Q. But you didn't take a note for each one?

A. Yes, that's right.

Q. Let's move on a little bit, sir, into another area. Backing up, you didn't test this particular device with a Servosled, did you, sir?

A. With a Servosled, no, sir; I tested in the vehicle itself and then by hand with the protractor.

Q. Do you know what a "Servosled" is, sir?

A. Servosled, I'm not sure what you mean by that.

Q. Okay.

A. I know what sleds are and I know what a servo is.

MR. KENNEDY: Your Honor, I'm going to object again. I'm certain nearly all of this is to be repeated again. It's the kind of cross-examination that I'm sure that Mr. Brockman is going to do again, it doesn't go to the function of voir dire.

MR. BROCKMAN: I disagree entirely under that case, Judge.

ThE COURT: I'm going to sustain the objection. I may change my ruling. We only have about five minutes. I'm going to instruct counsel, if you will go to his qualifications at this time, I'll take a look at this case over lunch, and if you request reconsideration, I will revisit my decision at that time. But at this point, the objection is sustained.

MR. BROCKMAN: As a matter of fact, I just turned the page to that.

THE COURT: All right.

BY MR. BROCKMAN:

Q. Mr. Huston, you told us you're not a medical doctor, not an osteopathic doctor; is that correct?

A. That is correct.

Q. You're not an orthopedic doctor?

A. No, I'm not.

Q. Not a neurosurgeon?

A. That's correct.

Q. Not a radiologist?

A. Right, I'm not.

Q. You do not actually examine people to comment on what their injuries are or are not, right?

A. That's right, I'm not a clinician.

Q. In this particular case, you didn't perform any examination of Mr. Smelser, did you?

A. No, I did not.

Q. And you did not review all of the medical records in this case concerning this gentleman, did you?

A. Oh, I'm sure I didn't. I reviewed a number of medical records, but let's see, I reviewed the medical reports of Arthur Lee, the Epp Memorial, MediCenter North Diagnostics, Kenwood Imaging Services and Our Lady of Mercy Hospital at Anderson.

Q. Have you --

A. But those were the only ones I looked at.

Q. Have you at any time reviewed the entire set of medical records for this gentleman?

A. Oh, I'm sure I have not.

Q. In fact, sir, the two-ring binders full of this gentleman's past medical history, the medical history after August of 1989, you have not reviewed in their entirety, have you?

A. That's what I just said.

Q. You reviewed I think it was like four x-ray reports, radiology type reports?

A. Well --

Q. In the emergency room record?

A. Yeah, I did.

Q. And that's a report from my independent medical examiner?

A. Yes, it is, Arthur Lee, the Epp Memorial Hospital, the MediCenter North Diagnostics and Kenwood Imaging Services and the Anderson Mercy.

Q. The MediCenter North and the diagnostic tests you are talking about are one page of diagnostic reports about what x-ray findings or MRI or CAT scan findings were of this gentleman's spine, are they not?

A. Yeah, I think that's right.

Q. You would not even pretend to diagnose what a certain person's injuries were, would you?

A. No, I rely on the medical records for that.

Q. Do you know what desiccation of a disk, a cervical or lumbar disk?

A. You mean the cutting of the disk?

Q. Yes. Desiccation is the cutting of the disk?

A. All right.

Q. Are you telling me that or are you asking me? I'm asking you first.

A. No, I don't know what the term is. I assume that's what it is.

Q. No, hypertrophic facet disease?

A. I did know that, but I don't remember it now.

Q. Do you know what causes arthritis?

A. Yeah, I know about that.

Q. Okay. You know that from personal experience?

A. Yes, sir.

Q. Do you know outside of your own personal experience such as you would be willing to tell somebody medically speaking here is what causes arthritis or would you leave that to orthopedic surgeons and neurosurgeons?

A. Oh, I'd never do that; that would be practicing medicine. I wouldn't do that.

Q. And you wouldn't feel competent to tell somebody what caused their arthritis, would you, sir, somebody else?

A. Well, not as a professional, just as a friend. I mean, I would do it in casual conversation, but I wouldn't practice medicine.

Q. Well, I can tell somebody if they stubbed their toe on a rock, the rock caused it. As you know, we're talking about you rendering opinions in this case, sir, and you can't render medical opinions as to cause and effect?

A. No. No. I can't let you talk me into that one. I can determine what the injury causation forces are. I can do the mechanics and I can find out what the stresses are, how the tissue is likely to respond given those stresses, and I can do that in a way that a medical doctor cannot do.

Q. You can tell us what the stresses were, based upon what somebody has told you about the accident and your knowledge of mechanics?

A. Well, sure. Based upon the evidence that's available, that's right.

Q. You can tell us what a hypothetical person's response may have been based on what you know about biomechanics?

A. That's right.

Q. And I assume, and you correct me if I'm wrong, sir, you're talking about some of these computer generated type tests that you've seen and reviewed, those reports, crash dummy tests and things like that?

A. And cadaver tests and tests on animals and volunteers.

Q. Have you done cadaver tests?

A. Cadaver tests. Well, we do some of that in the spine lab where we take spine cadavers and pull them apart.

Q. Have you, not we?

A. Oh, no, my students have done it. I have not done it.

Q. Are you competent to testify concerning what particular nerves serve through particular nerve roots?

A. Well, to some extent, sure, I can do that.

Q. Would you be able to render an opinion as to what a person's symptom was and what nerve root was impinged or may have been damaged?

A. Yes, to some extent, the nerves are not the same for all persons. For example, in the sacral region you have the peroneal nerves. L5-S1, you have the nerves which go down through the back of the leg, and L1-S2 runs the front of the thighs.

Q. Which nerve opening serves the dorsum of the hand?

A. I don't know, that would come out of the cervical spine.

Q. Which one serves the dorsum of the left hand?

A. Again, it would come out of the cervical spine. It could vary from individual to individual.

Q. Your understanding is that the nerve ending that serves a person's dorsum -- of a person's left hand -- the opening varies from person to person?

A. The nerve roots don't all go into the same openings for all of the nerves.

Q. And it varies from person to person?

A. Right. It does.

Q. You're also of the opinion then that for this particular case, since you haven't, and I don't mean to be facetious, haven't cut up Mr. Smelser and looked at where his nerve roots go, you wouldn't be able to tell us which nerve roots, you may or may not be of the opinion which nerve roots may or may not affect complaints to part of his body?

A. Well, I rely on the medical people for that.

THE COURT: Counselor, we'll have to recess and continue after the lunch break. We'll reconvene at 1:30.

MR. BROCKMAN: Pardon?

THE COURT: 1:30.

MR. BROCKMAN: Thank you, Your Honor.

(Brief recess.)

THE CLERK: Please remain seated. Court is in session. Mr. Brockman, are you ready?

MR. BROCKMAN: Yes.

THE COURT: Mr. Huston, are you ready, sir?

THE WITNESS: Yes sir, I am.

VOIR DIRE EXAMINATION

BY MR. BROCKMAN:

Q. You would agree, wouldn't you, sir, that based upon the records that you reviewed and what you know about this particular motor vehicle accident, that there is nothing unique about the injuries that this gentleman sustained?

A. Well, I suspect they are unique to this gentleman, but they are not uncommon injuries.

Q. Right. And they are not uncommon injuries in a rear-end motor vehicle accident, are they, sir?

THE COURT: Wait a minute, where are we now, sir?

MR. KENNEDY: I was about to object, Your Honor, and I will for the record.

THE COURT: For the record, counselor, I will qualify the expert as far as the Merrell Dow requirements are present in this case. I will permit you to ask questions concerning his qualifications. If you want to challenge his qualifications as a biomechanical expert.

MR. BROCKMAN: Are you telling me that you're qualifying him on both areas, Judge, the testing that he did and the rendering opinions about what is or isn't caused by this motor vehicle accident?

THE COURT: I will question him concerning his ability to render opinions on the ultimate question of what the causal connection is between the seat belt and the injuries.

MR. BROCKMAN: Are you asking me to sit down? If you are, that's fine. I just want to make sure I understand.

THE COURT: I see two areas here, and I think you have alluded to them. One, the qualification of the expert as an expert in his field. Dr. Huston is an expert in mechanical engineering, which includes biomechanics, as I understand it; isn't that correct, Doctor?

THE WITNESS: Yes, sir, that it is.

THE COURT: If you wish to question him concerning that, I'll permit it. As to whether or not the opinion he's going to render is relevant and reliable as required by Merrell Dow, I'll question him. I'll go right ahead then. Dr. Huston, ultimately, as I understand it, your opinion will focus on the impact that the failure of the seat belt had on Mr. Smelser?

A. Yes, sir.

Q. Is that correct?

A. That's correct.

Q. And the causal connection between the failure and what, if any, injuries he sustained?

A. That's correct.

Q. Generally how will you require -- how did you arrive at such an opinion?

A. All right. Well, it will be a twofold opinion. One will be that the seat belt failed to function as it should have functioned. And what that will mean is that the shoulder belt failed to hold Mr. Smelser in place --

THE COURT: Um-hmm.

THE WITNESS: -- as it's designed to do. And that failure to hold Mr. Smelser in place allows him to go forward into the left front of the vehicle, leaving from the rear-end collision first his neck behind, thrust backs having nothing to do with the seat belt, but then allowing his shoulder to go forward, aggravating that hyperextension injury that will be the connection with the neck injury. And then the lower spine injury, there will be a bending over at the spine, which is not, or will not occur if the belt functions properly, and that bending over at the spine causes excess stress on the vertebrae.

THE COURT: So the two areas of injury are the neck and lower spine.

THE WITNESS: Lumbar spine.

THE COURT: Lumbar spine.

THE WITNESS: Yes, sir.

THE COURT: And you're saying, A, you've tested the belt yourself by being in the truck.

THE WITNESS: Yes, sir.

THE COURT: And testing it.

THE WITNESS: And also I tested the belt outside of the truck.

THE COURT: And how did you do that?

THE WITNESS: Outside of the truck.

THE COURT: Yes.

THE WITNESS: What I did was I held the mechanism in my hand, and then I used a protractor and tilted mechanism. Now tilting the pendulum is similar to

deceleration in the case. Tilt the pendulum in the mechanism.

THE COURT: I understand.

THE WITNESS: I tilted the mechanism and continued to extract the webbing and continued to extract any further webbing and I measured those angles.

THE COURT: I see.

THE WITNESS: And I discovered that it didn't lock the webbing soon enough; that is, the angle got too great and sometime it didn't lock it at all.

THE COURT: Do you have a standard by which you can judge this belt? In other words, how do you know at what point the properly working seat belt will catch with regard to the -- is it pendulum, you called it?

THE WITNESS: There is a pendulum.

THE COURT: Yes, the pendulum at some point, if it's working properly, that belt will catch when that belt goes forward so many degrees?

THE WITNESS: That's correct.

THE COURT: Do you have a standard by which to gauge this belt?

THE WITNESS: Yes, well, that's a federal standard. It's the code of Federal Motor Vehicle Safety Standards require that it lock at 35 degrees. When you tilt it, 35 degrees, it is to lock.

THE COURT: I see. So you tested this belt as against the federal standards.

THE WITNESS: That's right.

THE COURT: As to the causation of the injuries, isn't this a -- aren't you giving a medical opinion when you say because the body moved forward the neck was injured and the lower back was injured?

THE WITNESS: No. I'm taking as a given that the neck and back were injured. One of the assumptions that I am making is that Mr. Smelser had no similar neck and back injury before the accident.

THE COURT: Um-hmm.

THE WITNESS: And then what I'm saying is that the forces involved, the kinds of motions involved, and thus generating forces involved, are the kind of forces which

would lead to these kinds of injuries that are described.

THE COURT: An injury of what?

THE WITNESS: Oh, injury of the vertebrae. He's got a C4-C5 and a -- well, I can remember L5-Sl disk injury.

THE COURT: When we say "vertebrae," what are we talking about?

THE WITNESS: What you have, the spinal cord being made up of vertebrae segments, and then in between two vertebrae is an angular, like an angular disk, and you have then what are called foramen. A foramen is an opening. There is at spinal foramen where the spine goes through and there are vertical foramen where nerves come out which run the body. And then if you have an injured disk, the disk then is this rubber support -- like a washer -- can protrude and impinge upon these nerves, causing a deficit.

THE COURT: And you're giving the opinion that based on the way the plaintiff was thrust forward by virtue of the fact the belt was not working, this injury was caused?

THE WITNESS: Yes. He would have generated the forces which caused those injuries.

THE COURT: By what standard do you make that conclusion, or through what process of scientific analysis do you arrive at that conclusion?

THE WITNESS: Right. This is a difficult area, because each person, each individual person, has their own tolerance, limit, that is, two people can be in the same accident. One can be injured and the other not simply because of different structure. For example, women tend to have more hyperextension injuries than men simply because they have the same head mass generally, but a smaller neck. So that all I can do with Mr. Smelser is talk about people in general and say that, well, these are the kinds of motions and forces that would lead to these kinds of injuries.

For example, if I have a pencil, and I want to break the pencil, I can't break the pencil very well by pulling it a part. I can't break the pencil by pushing it together. If I want to break the pencil, the easiest way is to bend it. That's what I'm saying about the spine. If you bend it unnaturally, it then causes the injury. It's very strong in the direction of the spine, but when it's bent, you don't have nearly the strength.

THE COURT: Well, we all have common knowledge that if you take a pencil in that way and break it in two, it's going to break. As a Judge, I could even take judicial

knowledge of that. I mean, I have seen it done and I can demonstrate it easily. But, have you -- I mean, how do you know that a spine will react or a spinal column will react that way, or a vertebrae will act that way? Do you have -- have you investigated accidents before -- in other words --

THE WITNESS: Oh, I have done this in many --

THE COURT: On what do you base your decision that the vertebrae will be injured under these conditions as compared to a pencil breaking under the conditions that you mentioned?

THE WITNESS: Right. These are not uncommon injuries in this kind of analysts. It's been known for a long time in the literature that lap belts in the rear of cars are unsafe, particularly for children, because they get the jackknifing and often lumbar injuries like Mr. Smelser. So that has been documented in the literature and it has been written up in many books of biomechanics. Similarly, with the neck, hyperextension injuries are well known. For example, the neck --

THE COURT: How do you know them? You say well known, what is your experience.

THE WITNESS: Oh, okay. My experience has been

through the consulting and through the reading and the teaching that I have done at the University and to some extent through the research that I did, we developed a head neck model for the Navy. We did that because the Navy was having trouble in the Vietnam War with pilots jumping out of the airplanes and they often broke their neck and the key idea there were a parachutists, what is called opening shock. And sometimes if the parachute comes off on the back, then the head will go down and the chin will provide the protection but if it parachute comes in the front, you'll get that sort of motion. So we developed a head neck model, computer model for the Navy and studied those, that phenomena.

The Society of Automotive Engineers has a publication of tolerance limits in general for individuals regarding the neck and other parts of the body. And that's the data that I've used and the experience that I've used in my consulting work.

THE COURT: Is this area that we're discussing, the probability of a vertebra being injured, the probability of a neck being injured under the conditions that we are assuming occurred here, is this the kind of -- the kind of information that would be a part of biomechanics --

THE WITNESS: Well, this would be the kind of thing --

THE COURT: -- that you study?

THE WITNESS: In the course of teaching biomechanics, we talk about entry, we talk about rehabilitation, we talk about workplace, we talk about performance, we talk about design or ergonomics, so all of this is included.

THE COURT: And you indicated that you studied certain medical reports Concerning the plaintiff; is that correct?

THE WITNESS: Yes, sir.

THE COURT: Did that include his condition before this accident?

THE WITNESS: No. It was reported to me, I simply accepted it and assumed that he was without these deficits before the accident?

THE COURT: I see. So your opinion is based upon the assumption that he did not have these problems before the accident.

THE WITNESS: Right. And then I accept the medical reports for what they are and can provide the causation.

THE COURT: I see.

THE WITNESS: Through the support.

THE COURT: All right. I have no further questions. If any of you wish to ask a few additional questions, I'll permit it, not extensively, because I think we have covered it pretty well. But I don't want to preclude you from asking any further questions.

VOIR DIRE EXAMINATION

BY MR. BROCKMAN:

Q. Mr. Huston, you told Judge Sherman that you can talk about the forces that are generated in a rear-end impact and how they cause the spine to move; is that fair, sir?

A. Yes, sir.

Q. The forces that are generated in this rear-end impact, just from the impact, are the same forces that are generated if the seat belt was on and working properly? Just the forces?

A. Yes. In terms of the vehicle, that's correct.

Q. And the type of injuries, as you understand them, that this gentleman has from looking at his radiology reports and the other things, are the kind that are generated in a rear-end accident with a properly working seat belt?

A. Well, the neck injuries are, but the lumbar injuries are not.

Q. Part of the reason you're saying the lumbar injury is not in this case is because he didn't have prior back problems before this accident and you learned later that he did after the accident?

A. No, no. That isn't -- that's not the basis. The basis for that opinion is that there is no evidence that I saw that there was any failure of the back rest. Lumbar injuries in rear-end collisions usually occur whenever the back rest fails and goes backwards. In this case, that didn't happen.

Q. Your opinion is that because the back rest didn't fail, that the only thing to explain any back complaints that this gentleman ma~ have and back injuries is this jackknifing?

A. Yes, sir.

MR. BROCKMAN: I don't have anything further, Judge.

THE COURT: All right. I assume you're ready to proceed.

MR. KENNEDY: Yes, Your Honor.

THE COURT: All right. Let's call in the jury.

(Jury in.)

THE COURT: Mr. Kennedy.

MR. KENNEDY: Thank you, Your Honor.

DIRECT EXAMINATION (Continued)
BY MR. KENNEDY:

Q. Dr. Huston, we have had a little break here. Excuse me if I don't repeat myself. I hope I do not do that. At the point we left off, I believe I asked you did you proceed -- at this point. that you were at the office in Batavia, did you proceed then to examine the truck and the seat belt assembly?

A. Yes. I had -- was called to Batavia to look at the truck and I did that. And I saw that the seat belts had shown signs of use in loading and then I asked for permission to test the belts, which I did. The way I tested the belts was I got in the truck and drove it around the suburban area of Batavia, and I caused the truck to come to a sudden stop, and I tested to see whether the belt, particularly the shoulder belt, would provide restraint.

that the person driving the other vehicle, which was a 1989 Chevrolet Cavalier, that person reportedly was going about 45 miles per hour.

MR. BROCKMAN: Objection, Your Honor, that's hearsay. He's getting ready to state what somebody else said to the police officer that filled that out.

THE COURT: Would you give me the exact wording of your question, please?

MR. KENNEDY: What the foundational question was: Is this the kind of data that is normally used to form opinions by people in your field? And then I asked him what he learned from the accident report.

THE COURT: Is this what you used in arriving at your decision, Doctor?

A. It's what I used in terms of understanding the accident, itself.

THE COURT: For that purpose, I'll permit it. Overruled.

BY MR. KENNEDY:

Q. Okay.

A. And what I learned was that this was a rear-end collision with the colliding vehicle estimated to be going about 45 miles per hour.

Q. You have already describe and forgive me if I'm repeating you have already described the seat belt three point system to the jury; is that correct?

A. Yes.

Q. Were the tests that you described performed on the driver's seat belt?

A. I'm sorry, I didn't understand.

Q. You were in the driver's seat performing the test on the seat belt?

A. Yes, I was. The driver's seat belt. I did not test the passenger's seat belt.

Q. Doctor, did you form an opinion at that point to a reasonable degree of probability in your field of expertise based upon your education and your experience and based upon your examination and testing of the seat belt on the driver's side of this truck as to the functioning of the seat belt on August 29, 1989?

MR. BROCKMAN: Objection, Your Honor.

THE COURT: Overruled.

A. Yes, I did.

Q. And what is that opinion?

A. Well, my opinion --

MR. BROCKMAN: Objection, Your Honor.

THE COURT: Overruled.

A. My opinion upon this driving test was that the belt when I was testing the vehicle was not functioning as it should be. And that if that was the way that it had functioned at the time of the accident, then that would have allowed the occupant to not be restrained and come to his injuries. I made the recommendations then, as you may remember, that the seat belt needs to be examined further outside of the vehicle to determine why it isn't working properly.

Q. Was your opinion that it was not working properly on August 29, 1989?

A. Yes, sir, it was. That's -- yes. No question about that.

Q. Did you make any assumptions in forming that opinion?

A. Yes.

Q. And what were those assumptions?

A. Well, my assumptions were that the belt, as I examined it, was the same as it was at the time of the accident and that it had not been tampered with or altered.

Q. Did you make any assumption as far as whether or not Mr. Smelser was wearing the seat belt?

A. Assumed that he was wearing a seat belt. He had told me that he was wearing it.

Q. Did you gain any information from the accident report in that regard?

A. Yes, in the accident report, it's reported that he was wearing his lap and shoulder belt. It's stated right on the front page.

Q. Could you explain the -- did you make an...

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examine the same seat belt?

A. Yes, I had made the suggestion that the belts be taken out of the vehicle and examined, and then at a later time actually quite a bit later, on November the 20th, I was able to examine the belts.

Q. In 1993?

A. Oh, excuse me. Yes. I looked at the truck on March the 13 of 1992. But then over a year later on November the 20th of 1993, I was able to examine the belts outside of the truck.

Q. And did you take the seat belt, the driver's seat belt into your possession at that time?

A. Yes, sir. As a matter of fact, I believe it was delivered to me by you.

Q. Okay. Did you perform additional tests on the seat belt at that time?

A. Yes.

Q. Okay. Could you explain those tests to the jury, please?

A. Yes, my focus in these tests was on the shoulder belt. And what I did was I had the mechanism, which is the retractor, and the webbing, which came out of it, and I tested to see whether the retractor would allow the webbing to unspool. Whether the retractor would, in fact, lock. Now, the way seat belt retractors work inmost vehicles is that there is in the inside of the retractor, in this

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A. Yes, that's what I was saying. It showed that same kind of behavior.

Q. Could you compare those two tests, Doctor? Which one is superior, in your opinion?

A. Oh, well, if you really want to know something is working, I mean, you test it in the vehicle, that's what counts, that's the ultimate test.

Q. Now, you mentioned before that you took some photographs of the webbing; is that correct?

A. Yes. I believe they are here in this exhibit folder.

Q. Exhibit 17.

A. All right. Yes.

Q. I believe you indicated that the webbing was in what kind of shape at that point?

A. Well, when I saw it, it had evidence of what I call "loading." There was stretch marks that can be seen in the webbing.

Q. What is "loading"?

A. Well, loading is simply stretching; that is, the belt is pulled. It shows that it's been in an accident.

Q. At some point in time were you supplied information about an earlier accident?

A. Yes. I was told that there had been an earlier accident with this vehicle.

Q. Okay.

accident and had not been replaced, as it states in the manual, that it should have been.

Q. Doctor, do you have an opinion to a reasonable degree of certainty within your field of expertise as to what action on the part of anybody could have prevented the failure of the seat belt on August 29, 1989?

MR. BROCKMAN: Objection, Your Honor.

THE COURT: Overruled.

A. Yes, sir.
Q. What is that opinion?

MR. BROCKMAN: Objection.

THE COURT: Overruled.

A. My opinion is that, according to the instructions in the manual, that the belt system should have been replaced. It states that.
Q. If I can -- you're referring to Exhibit 22?
A. I'm referring to the owner's manual on page 1-7 where it talks about seat belts -- guide loops work

properly, look for loose parts or damage that could keep the restraint system from doing its job. Now, here is the key. Replace a belt if the webbing has been cut or otherwise damaged. Replace belts in use during all but a minor collisions. If there is any question, replace the belt. So, the answer to your question is that the action, in my opinion, that should have been taken, since there had been a prior accident, is that the belt should have been replaced.

Q. Doctor, were you furnished any medical reports or information in regard to Mr. Smelser?

A. Yes, sir.

Q. And could you tell the jury what reports those were?

A. Well, I received medical records for Mr. Smelser compiled by Arthur Lee, that's Dr. Arthur Lee, and from institutions, the Epp Memorial Hospital, the MediCenter North Diagnostics Center, the Kenwood Imaging Services and Our Lady of Mercy Hospital in Anderson.

Q. Referring to all but the first of those, are those the kinds of -- is that the kind of data or information that you experts in your field normally rely upon in the field of biomechanics in forming opinions?

A. Well, in the terms of biomechanics and injury causation, one needs to know what the injury is. And these reports provide a diagnosis or an analysis of how the person has been injured.

Q. And what did those reports tell you?

A. Well, for me, what was important --

MR. BROCKMAN: Objection. I'm sorry, Your Honor, are you talking about, Mr. Kennedy, other than the first one he referred to?

MR. KENNEDY: Yes, sir.

MR. BROCKMAN: I'm sorry, go ahead.

A. For me what these reports told me was that there was both a neck injury and a lower back injury -- that is a cervical neck injury at the level of the C3, C4, C5, a disk herniation, and in the lumbar region, the lower lumbar region, a herniated disk at L4-L5 and a disk bulge at L5-S1.

Q. Did you make any assumptions about Mr. Smelser's prior condition?

A. Yes, I did.

Q. What were those assumptions?

A. It had been assumed, and it had been reported to me, and I'm not sure by whom, that he didn't have any of these medical problems or these spinal medical problems prior to the accident.

Q. Was that assumption in regard to symptoms by Mr. Smelser?

MR. BROCKMAN: Objection. Leading.

THE COURT: Sustained.

BY MR. KENNEDY:

Q. What did that assumption concern, specifically, Doctor?

A. Well, I assumed that he hadn't had any such injury, no back pain, no neck pain, that this all came on after this accident.

Q. Doctor, did you form an opinion to a reasonable degree of probability within the field of expertise of biomechanics as to whether or not the injuries caused to Mr. Smelser were caused by the failure of the seat belt on August 29, 1989?

MR. BROCKMAN: Objection, Your Honor.

THE COURT: Overruled.

A. Yes.

Q. And what was that opinion, Doctor?

MR. BROCKMAN: Objection.

THE COURT: Overruled.

A. My opinion is that the failure of the seat belt, the shoulder belt webbing to lock directly, led to the injuries. The neck injury, in my opinion, was caused by the rear-end collision, with the neck being thrust backward. And then the failure of the shoulder belt allowed the shoulder to go forward, aggravating that injury, causing it to go back further. And at the same time then the lumbar region came from what might be called a jackknifing or a bending around the belt, causing the injury to the lower spine. I had noticed that there was a chart there.

Q. I would like --

A. I helped in the preparation of this diagram.

Q. Could you look at this diagram and explain what you mean by that, Doctor?

MR. BROCKMAN: I don't know if all the jury can see it that way. If you bring it forward a bit more.

THE WITNESS: May I step down, Your Honor?

THE COURT: Certainly. Is that visible to everyone on the jury?

A. All right, what we have here are the side view in the top panel and then an overhead view in the lower panel. And in these first views, we have the driver occupant in the normal driving position. Now, in the

second view, looking from below, we see that there is an impact from behind, a rear-end collision that's indicated by this. And what this does is you can imagine the operator sitting here being rear-ended, the truck is suddenly thrust forward, but the head then is left behind. And it tends to go back. It didn't go back real far, because although there isn't a head rest, there is a windshield back there, and we can see that down here. By then, as the truck continues to go forward, this shoulder belt instead of remaining taut and tight, doesn't provide restraint, so that the person is allowed to go forward, which allows the chest to go forward, with still the head being back, aggravating this neck problem. And yet at the back, we have this tight bending around the lumbar spine, which, in my opinion, is what was the causing forces of these disk injuries in the lumbar spine. And then this is an overhead view of Mr. Smelser, who reportedly went forward to the left of the steering wheel.

MR. KENNEDY: Thank you, Doctor.

(Witness goes back to the stand.)

THE COURT: Maybe we need to move it back. Thank...

Q. You've looked at forklift trucks and rendered opinions about whether forklift trucks are safe or not safe or are constructed properly or not constructed properly?

A. Mostly with the forklift trucks, the issues have to do with some kind of defect, and I have done some of that. But not general design of forklift trucks.

Q. You've testified about braking systems for motor vehicles in the past?

A. Yes, I have.

Q. You have testified in airplane crashes, haven't you?

A. Well, I didn't testify in the crash, but, I have testified about air crashes.

Q. About the crash?

A. Yes.

Q. You have testified about grinding wheels?

A. Oh, I don't remember that.

Q. You've testified about exploding bottles?

A. I've testified about broken bottles, but I don't remember an explosion.

Q. You've testified concerning a defective seat adjuster for a car?

A. Yes. Yes, I've done that.

Q. A paper cutter, all kinds of industrial machinery, have you not, sir?

A. Industrial machines. Now, some of those that you've

that I answered questions for you.

Q. Right, when you and I were in depositions, you sent me a bill and I paid it, correct?

A. Yes, you paid it promptly.

Q. And Mr. Kennedy is going to pay you for the time you spent here today for the jury and the other work that you spent in working up this case, correct?

A. Yes, I expect So.

Q. And that's at the rate of $120 an hour?

A. Yes, in this matter, it is.

Q. You have never designed a seat belt for a car, have you, sir?

A. That's correct. I have not.

Q. You have never been retained by a car manufacturer to inspect a seat belt, have you, sir?

A. Well, in litigation, I believe that I have, but not in manufacture.

Q. You've never been retained by a seat belt manufacturer to inspect the seat belt or to design a seat belt?

A. Yes, that's correct, I have not.

Q. This particular case, in your examination of this, the seat belt, the first thing you did was get out to Mr. Zugelter's office, which was Mr. Kennedy's office,

also in downtown Batavia, was that on March 13, 1992?

A. Yes, I believe that's right. It was, yes.

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and that he was thrust forward up to the left front corner of the truck.

Q. Okay. You have not reviewed his deposition in this case, have you?

A. No, that's right, I haven't seen that.

Q. And you haven't reviewed any other depositions he may have given concerning this accident?

A. Yeah, right, I haven't.

Q. So, what you are basing your understanding of his body motion in this accident on is what he told you on March 13, 1992?

A. Yes, I believe that's right. But let me check my notes. There may be one other item here that can be helpful. Give me a moment.

THE COURT: Certainly, Doctor.

A. Yeah, as far as I know, that's all. I was looking at some correspondence that I had to see if indeed that description may have in fact come from either Mr. Zugelter or Mr. Kennedy, but I don't have any record of that, so to the best of my knowledge it came from Mr. Smelser.

Q. And Mr. Smelser told you that he went back and hit his head on the rear windshield, did he?

A. That, I don't recall. I don't remember that.

Q. Did Mr. Smelser tell you that he went forward?

A. Yes. That was -- I have the impression that he did that.

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A. You're trying to ask difficult questions. What I did was, I assumed that the account of Mr. Smelser going forward was accurate, and then I had determined from my investigation or it was my opinion, is my opinion that the shoulder belt didn't work, and putting them together, this is then an assimilation of that information.

Q. Did Mr. Smelser ever tell you that this shoulder belt didn't work?

A. I don't know if it did or not. I do remember him saying that the belt was okay on the first accident. There was some question about the belt working in

the second one. I don't know if he told me that or if he told that to Mr. Zugelter or Mr. Kennedy.

Q. Who then passed it on to you?

A. But my first when I heard -- when I got involved in the case, there was a question as to whether the seat belt was working properly in an accident. So that was my first knowledge of this. Before I knew anything else, I knew there was a question about a seat belt failure.

Q. The webbing, going back to that for a moment, was there an indication on the lap portion of this seat belt that there had been quote "loading" unquote?

A. I believe there was. Let me look in my notes. I think I have something on that. Yeah, well, I have that the lap belt, there was some fraying eight to twelve inches from the latch plate. Now, that could have been not from loading, but simply from wear. I'm not sure if that fraying was on the boundaries or in the center, and I don't know if the photographs show that, let me look and see. No, the photographs don't show that. I did notice that. And when I wrote it down, I had the impression that it had to do with loading, but it could have been simply from normal use.

Q. Just by looking at it on that day, you couldn't tell if what marks there were on the lap portion were from wear and tear or from this loading phenomenon?

A. Yeah, I had the impression it was from loading. The strict answer to the question, yes, that's correct, couldn't tell.

Q. But the kind of wear and tear marks that one might see on webbing is, just by way of exam, when you pull it out of the plastic housing that it sits in that you see in pictures there, it will rub against the plastic and it sometimes has wear marks, won't it?

A. Not only that, rubs against the seat and whenever you put it on your clothing. This was a utility truck, and I would expect people operating the truck might have denim clothing or sharp tools or something, and so it could wear that way, of course.

Q. You reached the conclusion that this earlier accident, the one of June, '89, though, the belt had been loaded?

A. Yes, I did.

Q. But you couldn't see what you can testify to us today definite signs of quote "loading" unquote from looking at the webbing, right?

A. Well, I could look at webbing -- when I looked at the webbing, I could see there was load marks. When load marks occur, you can't tell, because you don't know. But my deduction is that it occurred in the first accident and not the second accident, because the retractor, when I tested it, wasn't working properly in the second accident.

Q. Let's go back then. I thought that you just told me that on March 13, 1992, when you examined the lap portion, you saw marks, but you couldn't conclude that they were loading marks, they might have been usage marks?

A. That's right.

Q. All right. So, you can't say from just looking at the lap portion, itself, with no other information whether, in fact, there had been quote "loading" to the lap portion?

A. Oh, yes, right. That's right. I misunderstood the question then. I thought you were talking about the whole system, the lap and shoulder belt. But looking only at the lap belt, then, right, couldn't draw that conclusion.

Q. But you concluded, based on what Mr. Smelser told you, that on June 21, 1989, the lap belt had, in fact, been loaded because of the other accident, correct?

A. Right, he said the belts worked okay.

Q. And you also concluded, based on what Mr. Smelser told you or what you learned from his attorneys, that the lap portion of the belt worked on August 29, 1989?

A. Right.

Q. And you couldn't see in March of 1992, load marks on the lap portion from either of those accidents, could you?

A. Well, there were marks on it. I didn't make that distinction. It looked to me like they were load marks. Well, we have already been through that, so the answer is yes.

Q. Couldn't reach that conclusion on March 13, 1992, that there were load marks from either of those accidents?

A. Yeah, I suppose that's right.

Q. Okay. Then you looked at the shoulder portion where you reached the conclusion that there was quote "load marks"?

A. Right.

Q. And that is a distinction from usage marks?

A. Right. That's right.

Q. Based on what you're telling me, sir, I assume that a seat belt can be loaded and not leave marks, load marks?

A. Well, it depends to the extent that it's loaded and to the extent that the webbing would be damaged. Obviously, if it isn't loaded with a very high lead, it will not leave substantial load marks. Or it may not leave load marks that are readily visible.

Q. The stretch marks or load marks, that in and of themselves do not mean that the seat belt assembly system is not going to work, do they?

A. Let me see if I understand the question. If we look at the seat belt system and see that there are stretch marks in the webbing, that doesn't mean necessarily

that it won't work?

Q. Right.

A. But it does mean, or it would mean, that the system has been loaded. And if the system has been loaded, then one could be suspicious that it might not work.

Q. Okay.

A. Because the retractor could be damaged or could have been damaged from the loading.

Q. All I'm saying, you can't reach that conclusion just from the fact that there may be the load marks in the belt, the conclusion that the retractor is damaged?

A. That's right. There could be load marks in the belts and the retractor could, in fact, work.

Q. So your next step in this endeavor was to get behind the wheel of the truck?

A. Right.

Q. And, you drove around suburban Batavia?

A. Yes, sir.

Q. And the notes that you brought with you today do not indicate definitely how many times you actually slammed on the brakes?

A. Oh, yes, right. I don't remember. It was fewer than five, maybe three times.

Q. And your notes that you brought with you do not indicate for each time that you did it the actual speed you were going?

A. Right. All any notes say is that I was going at speeds of 25 to 35 miles per hour.

Q. And your notes don't indicate any type of particular measurement that you took of, according to you, how much the shoulder part played out?

A. Right. I simply noted that it didn't work right. It was clear to me that it wasn't working right, but I didn't try to quantify it and therefore document it.

Q. And when you were driving around Batavia, you were by yourself, weren't you, sir?

A. Yes, I was.

Q. If I could ask you, sir, just so I understand, when you're behind the wheel of this truck driving around, you have got your left hand on the wheel?

A. As I recall, that's right. Left hand is on the wheel. Right hand on the shoulder belt webbing.

Q. And you were just indicating to us that you were grabbing up around literally the shoulder area, is that where you were holding on?

A. Yeah, where it's convenient to reach.

Q. And what you were trying to do, while you were driving around hitting the brakes, is first simulate what might happen in an accident as far as a seat belt mechanism is concerned?

A. Yeah, what I was trying to do is basically get the pendulum to swing through.

Q. Okay.

A. I wasn't really, you know, trying to reenact an accident. The reason I went in suburban Batavia, I didn't want to be where there was other cars,

because I didn't want to create a hazard.

Q. When you were doing this, sir, did you ever get to the point during this two or three times that you hit the brakes, where you loaded the seat portion?

A. Well, it seemed to me that the lap belt was working.

Q. Did you load it, is that what you're telling me?

A. Well, I don't know if I loaded it substantially or not, because there wasn't a -- what I felt was, I felt my shoulders going forward and the webbing coming out, but I didn't feel my pelvis going forward. Now, there are two possibilities there for that. One is that the lap belt was working and held me in place. And these were not high speeds, in any case. And the other was that, of course, I was slamming on the brakes. So I'm pushing back, so I'm resisting the forward motion.

Q. And?

A. So it's hard to make much in the way of conclusion as to the operation of the lap belt in this case.

Q. And in distinction from a motor vehicle accident, you knew when you were going to hit the brake?

A. Oh, yes, sure.

Q. So?

A. That's right.

Q. Just your natural defense mechanism, hitting the brake, plus you knew you were going to do it, would also tend to weigh against the fact that you loaded the belt?

A. Oh, yes, sure, that's right.

Q. So what you're trying to do then, basically, is pull on the shoulder strap. Did you try and time it such that the pull on the shoulder strap was the exact moment that you got to the highest force or the exact moment that you hit the brake?

A. Oh, I don't know. I did it as best I could. I did this on a number of occasions with a number of vehicles. I simply put on the brake and fell forward to see if it locked, and it didn't lock, and sometimes it would pull out and lock, and it didn't lock, and in my opinion, it should have been.

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Q. Like the stand?

A. Like the stand, sure.

Q. What you did with this thing, you used the magnet part to mount it on the mounting plate? Where this thing would screw down into the floor?

A. Right.

Q. Okay. And so at that point in time, zero was what you assumed to be the in vehicle position. You tried to hold it so the mounting plate was at zero degrees?

A. That's right. I tried to -- I made an assumption about the zero position, because it's not always easy

and some vehicles it varies from one to another, but that was the kind of thing I did, yes, sir.

Q. What varies from some vehicles to another?

A. Well, some vehicles will have the retractor mounted such that if you look at the natural dimensions of the retractor, they are not horizontal in the car. That is, you know, they just don't fit in the car, but they are mounted at a slight angle. And this one, assumed that it just mounted pretty much the way it looked. I don't have the retractor here or I could show you.

Q. Does that mean, sir, that some vehicles when the seat belt assembly is mounted to the floor, that the retractor is not perfectly at zero in relation to the mounting plate?

A. Yes, that's right.

Q. Whether it's mounted?

A. That's correct.

Q. Okay. And let's just say by way of example, in this case, I think you mentioned when you were doing this hand held measurement, you came up with degrees of 40 degrees that it would sometimes lock at?

A. Sometimes at 40, yes.

Q. And if, in fact, the unit is mounted such that zero isn't what the mounting plate is, let's just say it's one degree's difference, your measurement would be 39 degrees?

A. Sure, that's right.

Q. And you could just subtract one by one by one for however many degrees?

A. That's right.

Q. And you have never seen any diagrams concerning this particular retractor mechanism and pendulum mechanism to know what degrees it's set at, have you?

A. No. I didn't. Although, I've worked on other cases with this kind of a mechanism and it seemed, as I recall from looking at those kinds of diagrams, that was not mounted at any substantial angle.

Q. But you don't know what this one is mounted at according to factory specs because you haven't seen them?

A. Yes, that's right, that's what I'm saying.

Q. So, when you held this thing in your hand, you tilted it front, back, left, right about a hundred times?

A. Right.

Q. Did you make a notation for each time you did that and measure the angle?

A. No, I did not.

Q. You were alone when that happened?

A. Well, I was alone most of the time. Whenever I consulted with Mr. Kennedy, I showed him the phenomena as well.

Q. Mr. Kennedy came out to your lab to show you this?

A. No, no, I brought the protractor with me and I showed it to him.

Q. Isn't it true, though, sir, even though you did this about one hundred times, you only tried to measure the angle about five or six times?

A. Yeah. That's probably right. Many times when I did this I couldn't get it to lock no matter what the angle was, and so there was no angle to measure; it just won't lock. If I turned it 90 degrees, it would just right out.

Q. What is the pendulum made out of?

A. Oh, I don't know. It sure looks like made out of the lead or something, soft metal.

Q. Soft metal of some type?

A. Yeah, but I don't know what it is.

Q. You mentioned something to the jury about when, I think it was, when you saw it this second time or later on when you

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A. Oh, I don't remember that.

Q. Let's talk a little bit about this diagram, again, sir?

A. All right.

Q. Did Mr. Smelser tell you that his left knee came into contact with anything?

A. I don't remember him saying that.

Q. As a matter of fact, in this particular diagram, it doesn't have his left knee coming into contact with anything, does it, sir?

A. That's right, it doesn't.

Q. And as a matter of fact, in the August, 1989, motor vehicle accident, the one that brings us here today?

A. Um-hmm.

Q. You assumed that the lap belt held Mr. Smelser in position because of what he told you?

A. Right. That's correct.

MR. BROCKMAN: If I may, Your Honor.

THE COURT: Yes.

Q. I know this isn't the truck seat, but as far as --

A. It doesn't look like the truck seat.

Q. But as far as a truck seat is concerned, sir, you'll agree with me that it's got the seat part the part where your buttocks sits and the back part where your back rest is?

A. Yes, sir.

Q. And in looking at that in comparison to this diagram here, it was your understanding based on what Mr. Smelser told you that his back stayed against the back of this seat?

A. Well, I don't think he said that. But that was my understanding, is that the lap belt held. But I don't

think he said it that way. He described it as being thrust forward.

Q. You came to the conclusion that because the lap belt held, his back stayed against the seat, just as you have got it drawn in every one of these pictures, correct?

A. That's right. To some extent, or some extent that there is movement in the webbing.

Q. Did Mr. Smelser tell you that his left knee went down and hit the floorboard?

A. I don't remember him saying that.

Q. Could you step out of the witness chair for me, please, and come down here?

A. What are you going to do to me?

Q. Nothing yet, sir, I promise you. Have a seat, please, in that one. Would you be able to demonstrate for the ladies and gentlemen of the jury, just sitting there, and I realize it's not the truck seat, sir, as nearly as you can physically, what you are trying to show them in this diagram here that was prepared with your help?

A. Oh, okay. What I'm trying to demonstrate there is that we're sitting here, and we have the accident, and during the accident, the truck is pushed forward, of course, attached to the truck, so that the seat goes forward, and the first thing that happens is head goes back and that gives a tendency for the pelvis to go forward and then the back rest pushes the body

forward, with the head back, stretched back like that, and then forward and up in this direction so that --

Q. Hold it right there, if you could, please, sir?

A. All right.

Q. Your back is essentially back towards the back of this seat, it's not touching it, but it's up close to it, is it not?

A. I don't know. I can't see it.

Q. Well, can you feel back there?

A. Oh, yes, there is about four or five inches, that's right.

Q. Try and get your left knee to come out here and touch my hand without moving your buttocks.

A. It won't come out that far unless I stretch it.

Q. It will come out if you shift your buttocks to the edge ofthe seat, won't it?

A. That's right.

Q. You can take your seat, sir, I'm sorry. You were looking pretty comfortable there.

A. Thank you, it's a better seat than this one.

Q. See what we can do about that for you. Sir, if the lap portion or this seat belt is on and snug and holds him?

A. Um-hmm.

Q. He's not going to go to the edge of his seat such that his knee could hit the floorboard, is it?

A. Probably not. It depends on how much stretch there is in the belt and how tightly it was and how much give there is.

Q. Let's talk about the medical records that you reviewed in this case, sir. Do you happen to have the records, themselves, also that you reviewed with you there?

A. Well, let's see what I have. I have notes from the medical records and I have a packet of records. Yes, I believe I have them.

Q. The actual records?

A. Well, I have what I reviewed.

Q. That's what I mean the records that you reviewed?

A. Right.

Q. I see them momentarily?

A. Yes, sir.

Q. Okay. Now, Mr. Kennedy was asking you during his examination about the records that you reviewed and relied on, and I think you told him that you relied on this Jewish Hospital, Kenwood, I think it's the Epp Memorial part, yeah, it is the Epp Memorial osteoscan survey?

A. Um-hmm.

Q. That's a bone scan, right?

A. Right.

Q. And then there is apparently a November 6, 1989, imaging report from that same facility?

A. Um-hmm.

Q. Do you mind if I detach the actual reports?

A. No, I have no objection.

Q. Do you mind, Your Honor, if I put them here temporarily?

THE COURT: No, go right ahead.

Q. Then you had an April 14, 1990, MRI cervical spine, did you not?

A. Right.

Q. And did you have one for March 6, 1994?

A. Yes.

Q. I detached the cover page.of that one, too, sir. So you have based your opinion about what was and wasn't caused in this accident on these four pieces of paper? I mean as far as the medical records are concerned?

A. I suppose you could say it that way.

Q. Would you agree with me, generally speaking, sir, that the more information that you have about something, that the better off you are, if you're going to render opinions about it?

A. Oh sure, absolutely.

Q. And you would like to have complete information, wouldn't you, sir?

A. well, sometimes you reach a point of diminishing work return where the additional information doesn't provide -- isn't helpful.

Q. Sir, I'm holding for you two ring binders that are Mr. Smelser's medical records. You'll agree with me just by looking, there is substantially more than four pieces of information in here concerning this gentleman's medical condition, won't you?

A. It looks like it. I wouldn't quarrel with that.

Q. You asked Mr. Smelser as to whether or not he had any prior back problems, didn't you?

A. I don't remember that. I had the assumption of the -- I made the assumption that he had not. I don't know if he told me that or that was represented to me by the counsel. That was an assumption that I made.

Q. Sir, do you have your report of October 3rd, 1993, the one that you sent to Mr. Kennedy?

A. I have it, but it's not handy. Let me look and I'll see if I can find it. You want the one of October 3rd?

Q. Yes, sir.

A. Yes, I have it.

Q. If you could refer to that. I'm looking at the last sentence on page one.

A. Yes, sir.

Q. He reportedly never had an injury to his neck or back before the accident, correct?

A. Right. That's what it says.

Q. Where did you get that information?

A. That's what I had. I don't know whether he told me that or that was reported to me by the counsel.

That's why I said it was reported, but I don't remember where that came from. But it was an assumption that I made when I wrote the report.

Q. Do you remember, as we sit here today, did you ask Mr. Kennedy whether that was the case or not?

A. Oh, gee, Mr. Kennedy and I discussed a number of matters. I remember it coming up in conversations with Mr. Kennedy, but I'm not sure if he was the one that first mentioned that to me. I don't know.

Q. Prior indication of some sort of -- some sort of back pathology would be important, wouldn't it, sir?

A. Well, yeah, I mean, if indeed this is an incorrect assumption, then that would be important.

Q. And that would, in fact, change your opinions about what parts, if any, of his low back problem are caused by this seat belt mechanism?

A. Well, it depends on what the information is, of course.

Q. If there is a report of prior back pathology, something that would show up in some sort of a radiology diagnostic test that would indicate to you that your opinion that whatever he has was only caused by this accident is not totally correct?

A. No, I think you're putting words in my mouth, and I wouldn't express it that way. It would depend upon if he had the exact same problems before then, of course, you couldn't say that this failed seat belt or the seat belt that didn't work and doesn't work

was causative. However, if he had a back problem, some other kind of back problem, not related to this, then it wouldn't affect the opinions at all. So not knowing anything about that, I can't really express an opinion about it.

Q. The reports that you reviewed show clearly that this gentleman had degenerative changes in his cervical spine and his lower thoracic spine, didn't they? I'm reading from your report.

A. Let me look and see. I think that's right. Right.

Q. A degenerative spine condition is something that is brought on over time, is it not, sir?

A. Generally speaking, an accident can lead to degenerative changes.

Q. Sir, you would defer to the medical doctors in this case, wouldn't you, as to whether or not an x-ray type finding, a MRI or x-ray taken at a certain point in time after our accident, August '89, would show degenerative changes from the August '89 accident?

A. Oh, that would be a medical opinion. I would defer to that, sure.

Q. And as far as what the actual radiographic evidence is, the MRI, the CAT scan, you would defer to the medical doctors as to what the reports actually show?

A. Right.

Q. Okay.

A. Yes.

Q. And what I'm getting at, sir, is you weren't trying to independently interpret what those reports are that we just went through, you're just reading them?

A. I'm talking about the reports as given, that he has the injury to the lower back in the cervical spine, and I can then relate the injury causing forces, the forces which would, from this accident.as demonstrated there and the failure of the seat belt mechanism, which would lead to forces which would cause those injuries.

Q. Did Mr. Smelser tell you that he hurt his neck in the June, 1989, accident?

A. I don't believe So.

Q. Start reaching for the first one, sir.

A. What?

Q. Start reaching for the first deposition, the one --

A. Okay.

Q. I'm sorry, I have got the wrong one. I'm still looking...